L. 49 MARCH, 1923 No. 241

# United States Naval Institute

## Proceedings

**The writers only are responsible for the contents of their respective articles**

## CONTENTS


| | PAGE |
|---|---|
| Destroyer Experiences During the Great War. Part IV.—Taussig | 383 |
| The Naval Policy of the United States in the Pacific Area.—Roop | 409 |
| A "Wrinkle or Two" in Handling Men.—King | 427 |
| Discussion on "A 'Wrinkle or Two' in Handling Men."—McNamee | 433 |
| Letters of a Retired Rear Admiral to His Son in the Navy.—Niblack | 435 |
| Decommissioning Destroyers at Philadelphia.—Weems | 449 |
| The Naval Academy of Today and Its Mission.—Tisdale | 453 |
| The Navy's Paper Work.—Goodrich | 465 |
| Navigation versus the Junior Naval Officer.—Downes | 469 |
| Discussion | 479 |
| Professional Notes | 483 |
| Notes on International Affairs | 531 |
| Book Reviews | 537 |
| Secretary's Notes (Prize Essay Notice) | 546 |
| Annual Financial Statement | 549 |


Edited by H. G. S. Wallace

Copyright, 1923, by J. W. Conroy, Trustee for U. S. Naval Institute

Published monthly by the U. S. Naval Institute, at Menasha, Wis.
Executive and Editorial Offices, United States Naval Institute, Annapolis, Md.
Entered as second-class matter at the post-office at Menasha, Wis., April 4, 1922, under the Act of Aug. 24, 1912. Acceptance for mailing at the special rate of postage provided for in section 1103, Act of Oct. 3, 1919, authorized Mar. 13, 1922.
Membership Dues (including Proceedings), $3.00 a year.
Subscription Rates, $5.00 a year. (Foreign postage extra.) Single copies, 50c.

# The Mark of Quality and the Seal of Protection

From time to time in the Navy you will witness the genuine service rendered by products of the United States Rubber Company—insulated wire and cable, rubber footwear, tires, belts, fabrics, gas masks, hospital supplies, soles and heels and many other commodities bearing the U. S. trademark.

For your own personal equipment it is advantageous to remember our products by their trade names—Raynster raincoats; Naugahyde bags and belts; U. S. rubber footwear; Keds, the superior canvas rubber-soled shoes; U. S. Spring-Step rubber heels and Uskide soles.

**United States Rubber Company**

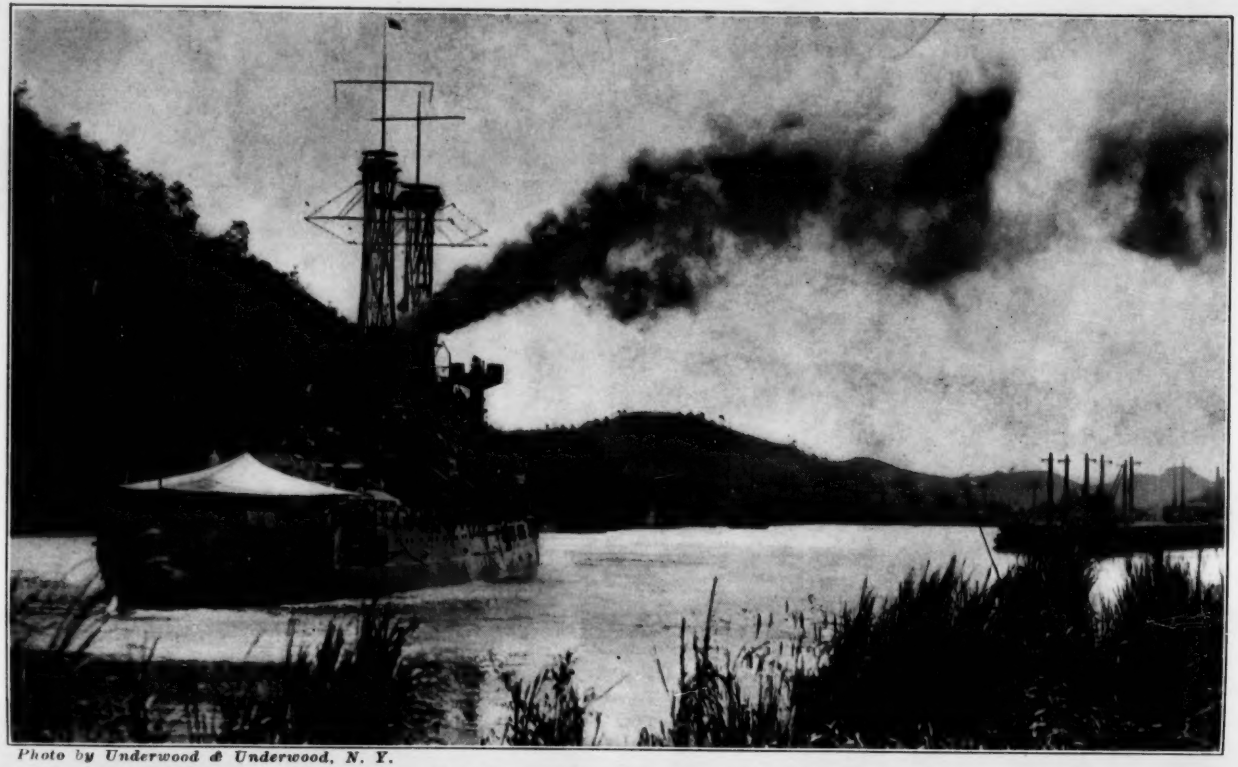


*Photo by Underwood & Underwood, N. Y.*

**U. S. S. "UTAH" IN THE PANAMA CANAL**
**Nearing the Pedro Miguel Locks**

# UNITED STATES NAVAL INSTITUTE PROCEEDINGS

Vol. No. 49, No. 3 MARCH, 1923 Whole No. 241

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

## DESTROYER EXPERIENCES DURING THE GREAT WAR

By Captain J. K. Taussig, U. S. Navy

### IV. OPERATING FROM THE BASE AT BREST

Wherein is told of the fitting out of the first of the new destroyers, their duties prior to arrival at Brest, and what they found there. Also some experiences attendant on the escorting of troop ships through the submarine danger zone.

#### Fitting Out a New Destroyer

For one who went through the trials and tribulations of placing a new destroyer in commission during the war, no narrative of destroyer experiences would be complete without at least a brief reference to this duty.

The difficulties the Bureau of Navigation had in furnishing trained men for these vessels, and how the plan was adopted for sending nucleus crews from Queenstown, has already been told. The first three of these nucleus crews of twenty-five men each arrived in the United States about December 1, 1917. With them came Commander A. W. Johnson, Commander W. N. Vernou, and myself. We were ordered to report to the Inspector of Machinery at the Fore River Shipbuilding Company, Quincy, Mass., for duty in connection with the *Kimberly*, *Sigourney*, and *Little*, respectively. The crews for these vessels were to be assembled at the Receiving Ship, Boston.

U. S. S. "Utah" in the Panama Canal
Nearing the Pedro Miguel Locks

It was announced that these destroyers would be commissioned early in January, 1918, but owing to various delays, the first of them, the *Little*, was not turned over to the Government until April 6, 1918. She was placed in commission, under my command, the same day, exactly one year after the United States declared war. Following the *Little*, other destroyers were commissioned with creditable rapidity. But we have no reason for being boastful about these first destroyers. Congress authorized their construction in August, 1916; so it was a year and seven months before the first of them was completed,—certainly not an accomplishment over which the country has a right to feel proud.

During the delay attendant upon getting the destroyers in material readiness, the assembling and organizing of the crews went on at Commonwealth Pier. Here were thousands of men to choose and pick from. But few there were who had ever been to sea. Any man who had the least knowledge of salt water was immediately picked by the first executive officer who happened to make the discovery. Here and there would be found an ex-service man, or one who had gone down to the sea in merchant ships. Now and then, through dire necessity, a prison "graduate" would be chosen, so great an asset was seagoing experience considered. These stray men, together with the twenty-five trained men from Queenstown, and from sixty to seventy-five recruits, would gradually be welded into a destroyer crew. The Pier, in fact, was a veritable training station where rudiments of discipline and the meaning of orders were taught. Unfortunately there was no battery of guns at which the men could be drilled. An earnest attempt was made to have a 4-inch gun installed on the Pier, but two months of effort proved unsuccessful. There was no gun available for this important use.

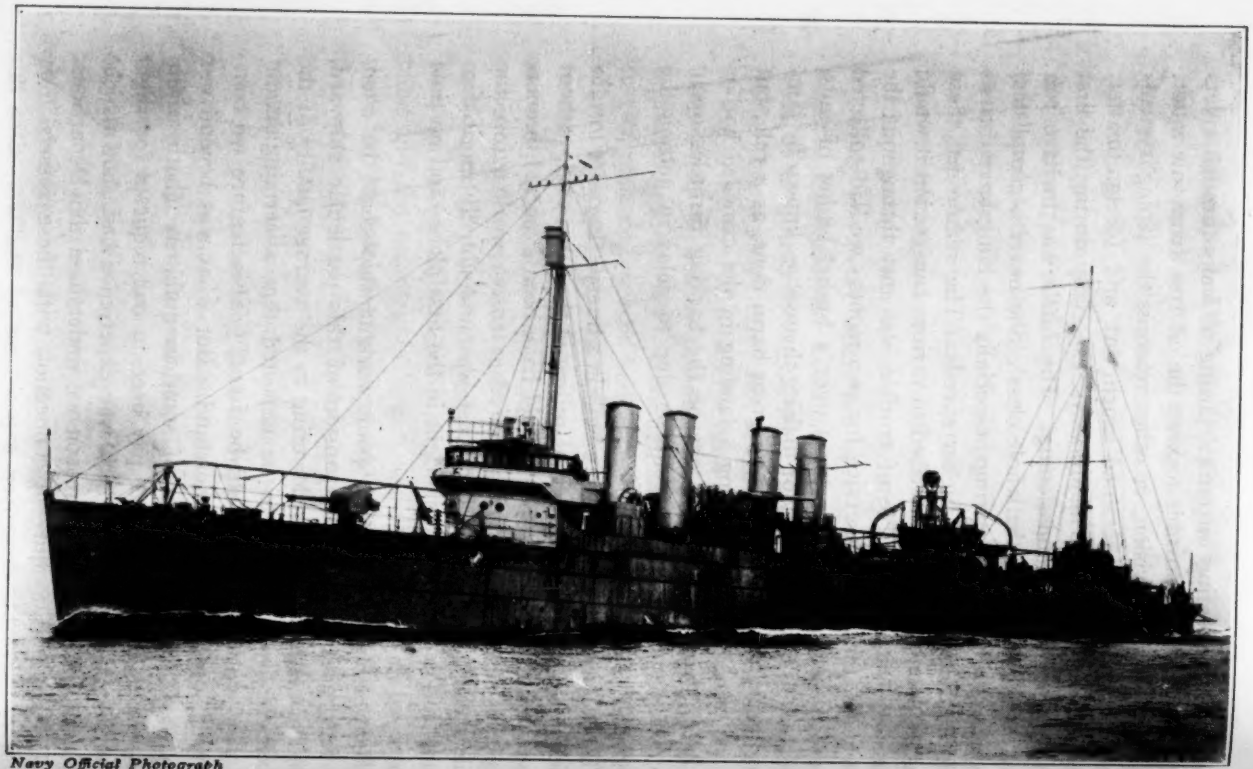
While it is understood that the material condition of the later destroyers was much better than these first ones, a brief account of some of the *Little's* troubles will be a fair sample of the others. The workmanship throughout was poor. Rivets were carelessly driven, thereby leaving many leaks through the deck and hull plating. In most cases these leaks were a source of either worry or discomfiture. They did not necessarily interfere with temporary military efficiency; but there were times when they did. An instance of this was where the skin of the ship served as one

side of the lubricating oil tank. Owing to leaks through rivets and seams it was impossible to keep the oil free from salt water.

For lack of supervision, or other reasons, the piping systems throughout the ship contained much dirt and foreign matter. This manifested itself in many ways, especially during the first two months after commissioning. The *Little* was to have run the steaming trials for the whole class. She never accomplished this, mainly due to hot bearings, especially the Kingsbury thrusts which burned out at the higher speeds. The reason for these bearings running hot was ascribed to various causes; but it would seem that the main source of trouble was dirt throughout the system. After being in service for two months we had collected from the steam and water pipes over a bushel basket of nuts, bolts, etc. They had a way of making themselves known by jamming the valves. There was no great harm done, as a rule, but on one occasion when making a landing in the crowded harbor at Brest, two bolts jammed one of the backing throttles open. We barely missed serious collision due to delay in getting the ship stopped.

The boilers of the *Little* were built in a hurry. In order to save time the experiment was tried of rolling in the tubes cold, without first annealing the ends. As should have been expected, numerous leaks developed, which required extensive work before the boilers were tight. The final cost was undoubtedly more than if the boilers had been built right in the first place; and no time was saved in the long run.

Many other examples of poor workmanship could be cited. In fact, with the great expansion of this particular shipyard, which necessarily meant a lowering in the average quality of the labor employed, it was to be expected that a certain amount of poor workmanship would be found. This feature we commanding officers could understand. But what was beyond our ken was the disinclination of some in authority (both within the service and without) to pay heed to our requests for slight changes and alterations which war experience had shown to be desirable, and for which reason we understood the Department had ordered us to duty in connection with these vessels. My most disagreeable destroyer experiences of the war were due to this.



*Navy Official Photograph*

U. S. S. "BURNS"

One of the new 1300-ton destroyers completed during the war. Note the fighting lights

On account of the poor material condition and the inexperienced personnel, official recommendation was made to the Department that immediately on commissioning we proceed to Guantanamo Bay for a ten-day shakedown, and then go direct to one of the European Bases. Neither the Department nor Admiral Sims approved of this procedure, both, however, for different reasons.

Admiral Sims in a personal letter to me, wrote:

As for your proposition to have a ten-day shakedown cruise in the South, I am sorry to say I do not agree with it at all. Of course I understand that this would be very desirable for many reasons and that if you could do it you would arrive on this side in a more efficient condition. But the essential thing is to get the destroyers over to this side at the *earliest practicable moment*. As you very well know the question of gunfire on destroyers can never cut very much ice in opposition to the submarine, for the simple reason that there are very few opportunities to use the guns with efficiency. The principal thing now is numbers, numbers, numbers, but these numbers will be no good unless they arrive here in time. The situation is really very critical. We are hard up against it for a sufficient number of vessels to supply adequate escort for the merchant convoys. We also almost entirely lack a sufficient number of vessels, to carry out the hunting operations against the submarines that we hope to carry out as soon as possible. Therefore you fellows should use *every possible effort* to get your vessels away from the yard and to start over here, training or no training. I understand that you can do very little on the way. The important thing is the presence of the vessel on this side.

This letter was dated February 26, 1918, more than ten months after we entered the war. As my ship was not in commission when it was received, I immediately wrote officially to the Navy Department withdrawing the recommendation for a ten-day shakedown at Guantanamo, and requested to be ordered to one of the European Bases immediately on commissioning.

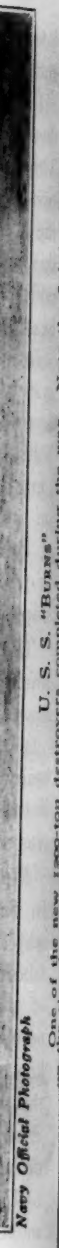
In answer to this last request the following reply was received:

NAVY DEPARTMENT
OFFICE OF NAVAL OPERATIONS
WASHINGTON

March 25, 1918.

From: Chief of Naval Operations.
To: Commander J. K. TAUSSIG, Fore River Shipbuilding Company, Quincy, Mass.
Subject: Movements of U. S. S. *Little* after commissioning.
Reference: (a) Your letter of 23 March, 1918.

1. The receipt of reference (a) is acknowledged.
2. The present policy of the Navy Department is to maintain on this


Navy Official Photograph
One of the new 1,200-ton destroyers completed during the war. Note the fighting tops
U. S. S. "Burns"

coast, distributed in the First, Third, and Fifth Districts, respectively, a few destroyers for operation against enemy submarines, should they appear in these waters. In carrying out this policy, the Department has decided to use for the purpose new destroyers during their fitting out and shaking down periods, sending them to European Waters when their places have been taken by newer destroyers coming along.

3. Accordingly, when the *Little* has been commissioned, she will be assigned to a district, probably the First District, for temporary duty during the period necessary for conducting her trials and for shaking down.

4. Inform the Department when it is expected the *Little* will be commissioned.

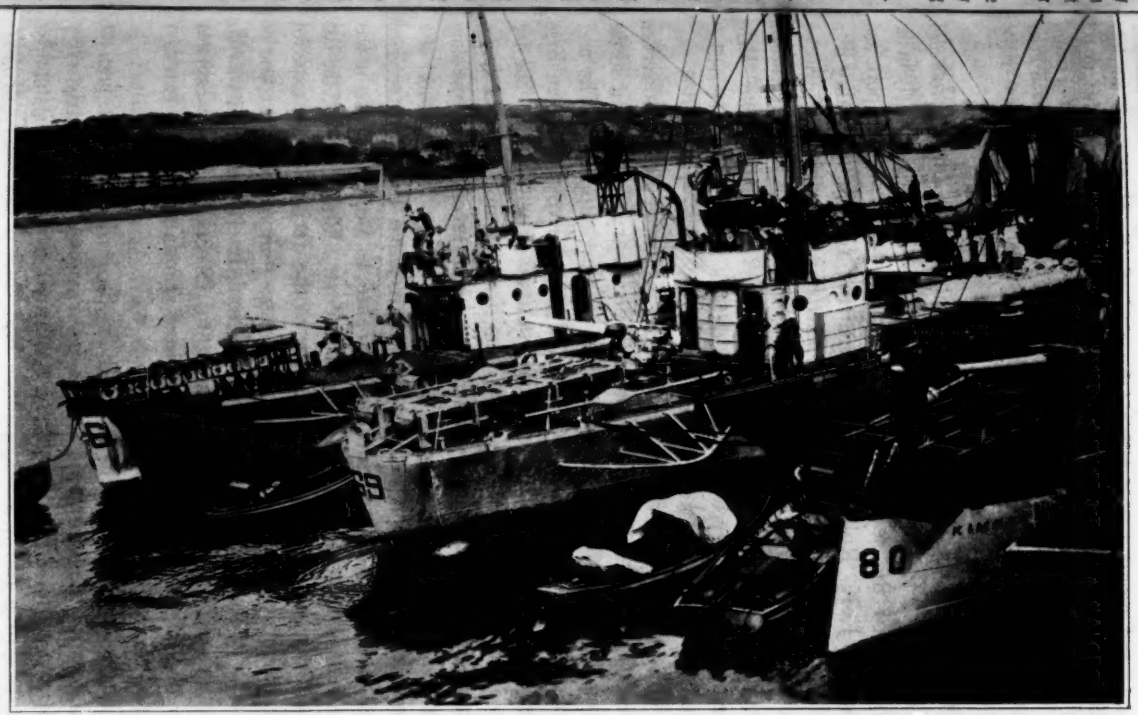
W. S. BENSON.

It will be seen from this that the German's announced intention to send submarines to our Atlantic Coast was already serving its purpose, although as yet no submarines had appeared. The German plan was to have one or two submarines operate against shipping three thousand miles from their base, although it was well known to them that the opportunities for inflicting damage were not nearly so good as off the English Channel, which was the funnel through which most of the shipping passed enroute to Europe. They felt that by diverting these few submarines, the United States would, as a counter-measure, divert a number of destroyers from the more active fields of operation and thereby, give the large number of submarines operating therein a better opportunity for destroying merchant vessels.

In accordance with the Department's stated policy, the *Little* when commissioned on April 6, 1918, was assigned to the First Naval District. We remained on this detail nearly six weeks, our headquarters being at Boston. There being no submarine scare on the Atlantic Coast during this period we were not sent on patrol, but put in our time drilling and training and remedying as far as possible the numerous defects with which we were commissioned and which continued to make themselves evident. Considerable time was spent in certain engineering tests which were prescribed by the Department, but there was no opportunity for target practice with guns or torpedoes.

On May 15, the following radio was received:

Commandant of First Naval District from Chief of Naval Operations. U. S. S. *Little* and U. S. S. *Kimberly* hereby detached temporary duty First Naval District period Commandant First Naval District direct these




Stern view of the *Sampson, Caldwell* and *Kimberly* showing depth charges in racks. Note the Y-gun and splinter mattresses on the after deckhouse of the *Sampson.*

vessels when in all respects ready for distant service proceed to Hampton Roads and report Commanding Officer U. S. S. *Huntington* not later midnight seventeen May for escort duty with *Huntington,* due to sail eighteen May period *Kimberly* and *Little* proceed with *Huntington* convoy as far as fuel will permit with enough remaining on board to reach Ponta Delgada and report senior United States Naval Officer present period Acknowledge.

In accordance with these instructions the *Little* proceeded from Boston to Hampton Roads arriving at that place early in the morning of the seventeenth. The *Huntington* was in port, and Captain J. K. Robison, without waiting for the formality of a call from me, came alongside the *Little* in his motor gig, rustled me into it, and took me to Newport News, where a conference of troop ship commanders was held on the *President Grant.* Here the operation order was discussed, details as to procedure settled, and the conference adjourned.

The transference of the *Little* from a base at Boston to service overseas came suddenly, so it was necessary to proceed to the Norfolk Navy Yard for fuel and a few supplies. The next morning, the eighteenth, we joined the convoy of seven large troop ships (two of them Italian) outside the Capes. The fog set in thick before the convoy was formed up. Earlier in the year this would not have made so much difference, and the ships would have been directed to proceed individually and meet at a rendezvous one or two days out. But word had been received that a German submarine was enroute to our coast, so it was desired to have the convoy under escort. This convoy, the last one to leave the United States prior to the arrival of the expected submarine, struggled through the fog, temporarily lost one or two of its members, but eventually shook itself clear and was off. The *Kimberly* was delayed, owing to defects which necessitated her docking at Boston, but she joined company with us two days out at sea.

These new destroyers with their flush decks were fine sea boats, and the later ones were improvements in nearly every way over the old type. They contained a number of improvements which our war experience had shown necessary or desirable. These were, briefly summarized: Proper crow's nests for lookout and fire-control; fighting lights; built-in bridge; spray and wind shield on forecastle gun; cocoa matting on deck to

insure safe footing; ready ammunition racks; Carley life rafts; depth charge racks; depth charge Y-gun, radio compass, and listening-devices. However, Captain Johnson and I found ourselves in command of ships that did not nearly have the steaming radius of our previous commands, the *Conyngham* and *Wadsworth*. In fact not only were these new destroyers less economical, but they also carried less fuel than the older boats! It was for this reason that the Department had directed us to put in at Ponta Delgada. We separated from the convoy and arrived at that port on May 26.

On reporting to Rear Admiral H. A. Dunn, who was in command of the Azores Detachment of the United States Forces Operating in European Waters, we learned that these two ships and the *Conner*, Commander A. G. Howe, which had preceded us, would probably be based at the Azores indefinitely. We had thought, of course, that we would go right on to Queenstown as soon as refueled; but here again the Germans had succeeded in dividing our forces, by the simple means of sending a submarine to show itself in the vicinity of these islands.

Ponta Delgada at this time was a busy place. It was a fueling port for ships that could not make the trip across in one leg. Although repair facilities were limited, broken down ships made this place a harbor of refuge. The *Cheyenne* and a division of submarines were based here; there was a sea-plane patrol; and the Gunboat *Machias* was at hand for an emergency call. A battery of 7-inch guns in charge of a detachment of Marines had been installed on shore, as a precautionary measure against any enemy submarine that again might attempt to bombard the city. Submarine chasers enroute to the Mediterranean made this a port of call. The *Little* had the experience of escorting nine of these, three French and six American, to Gibraltar.

But insofar as submarine activity was concerned, Ponta Delgada was a dull place for destroyers. So when orders came for the *Kimberly* to proceed to Queenstown, and for the *Conner* and *Little* to proceed to Brest, we were glad to move on. We felt that our services were much more needed in those waters, and it was time our fitting out details should come to an end.

## AT BREST

Until May, 1918, the main bases for the destroyers engaged in escort duty were at Queenstown and at Plymouth. The United States destroyers operated from the former port, and the British destroyers from the latter. Considerable of the duty of these destroyers consisted in escorting troop ships and store ships into and out of Brest and other French ports. Brest was being gradually developed as the main port of debarkation for those United States troops that were convoyed in United States ships. These inbound troop ships were escorted by the Queenstown destroyers. When outbound, these same troop ships were, after the troops had been debarked, escorted by vessels of the Brest command. These consisted mostly of the older coal burning destroyers and converted yachts. The policy was that incoming loaded vessels should have the strongest escorts available, while the outgoing vessels, traveling light, should receive such protection as could be given without detracting from the others.

Until April, 1918, the troop movement was not of sufficient magnitude to keep many destroyers fully occupied. Therefore, the Queenstown force could, when the occasions occurred, send a detachment to meet each convoy as due. This, of course, had its disadvantages, in that the destroyers, after seeing the troop ships safely into Brest, had to return light to Queenstown, a distance of about two hundred fifty miles. As the troop convoys became more and more frequent, the disadvantages of this method of operation, which had long been recognized, became more and more apparent.

The main difficulty with establishing a destroyer base at Brest was in the lack of fuel oil facilities at that place. With the limited number of destroyers available it had been, therefore, much better to keep them concentrated at Queenstown, where they were ready for both the troop convoys and merchant convoys.

However, the time was approaching when the troop convoys became frequent enough to demand the full time of a large number of destroyers. This time arrived in May, 1918, simultaneously with the availability of a number of new destroyers. The logical step was then taken of dividing the Queenstown force by sending some to Brest where they were permanently based under the com-

mand of Rear Admiral H. B. Wilson, U. S. N., who commanded the United States Naval Forces in France.

The *Little* arrived at Brest on June 9, 1918. We found here the methods of administration and control somewhat different from that at Queenstown, due to the fact that at Brest there was a dual control, while at Queenstown there was unity of command.

A number of destroyers had suddenly been sent to Brest where they augmented the forces operating from that base. Here they had to be organized, administered and commanded under conditions that were complex. There were no destroyer tenders at Brest other than the *Panther,* which was kept busy with the coal burners. The *Prometheus* was the repair ship for all other craft, and she had her hands more than full.

Owing to these conditions the relationship between destroyers, *Prometheus,* District Commander and French authorities was not at first clear. There was some difficulty in promptly obtaining our fuel, stores, provisions, and repairs, as each commanding officer had to go to several different sources in order to get these logistic requirements fulfilled. However, after the arrival of the *Bridgeport* for duty as destroyer tender, most of our difficulties adjusted themselves, and others gradually disappeared as time permitted of better organization and co-operation.

For many officers the chief point of rendezvous when ashore at Brest was in the apartment of Madame Grout, the wife of Rear Admiral Grout of the French Navy, who was in command of the French Cruiser *Force,* operating on the United States side of the Atlantic. This estimable lady and her daughter, Mlle. Germaine (who has since married one of our American Naval Officers), were most charming hostesses. No matter at what time we dropped in, they were ready to entertain us; and ten o'clock in the evening was a favorite time for serving tea. Madame Grout, like everybody else in Brest, was without sugar and white flour, so we from the destroyers would make donations of these important ingredients, in return for which we were served the most delicious chocolate cake and other pastries with our tea. Madame Grout and her family will always carry with them the well wishes of those of us who were fortunate enough to have crossed their path.

## OPERATING WITH TROOP SHIPS

Although our duties while *inside* the harbor at Brest were not so satisfactory as we would have liked, we certainly had no reason for complaint as to the *outside* work, which was carried on under the orders of Admiral Wilson. In fact there was considerable more thrill and satisfaction, and much less monotony, in working with the troop ships, than with the store ships. While we knew that the merchant convoys were glad to see the destroyers heave in sight, they gave us no outward sign of enthusiasm. On the other hand, when we met a troop convoy, the whole atmosphere seemed to be surcharged with joy, emanating from the thousands of men on the ships. It was good to know that they were glad to see us.

The troop convoys were smaller in number of units, but often greater in displacement, than were the merchant convoys. But instead of crawling along monotonously at an advance of seven to ten knots, these troop convoys sped along at from thirteen to twenty knots. If we happened to be detailed for escort duty with the fast ships, such as the *Agamemnon, Von Steuben,* and *Mount Vernon,* and then met an inbound convoy composed of the *Great Northern* and *Northern Pacific,* or the *Leviathan,* our total time at sea would be only three days. In fact, while operating with these troop convoys, our longest periods at sea were five days. On the other hand, when escorting store ships from Queenstown as a base, six days was the usual sea period, and at times we were out for seven, or even eight days. But these fast trips often brought with them much discomfort. Especially was this so when standing out to the westward, bucking the ever present westerly wind and sea that prevails in those waters. A destroyer always hated to have to request a convoy commander to slow down, and for this reason we would hold on to the limit, plunging through the big seas, covered from bow to stern with spray. But when green seas commenced to come aboard we would have to give in, as this meant the buckling of stanchions, deck plates, or bulkheads. Sometimes an unusually large sea would unexpectedly be met with before we had slowed down. This happened on one occasion to the *Little,* just outside Brest, and resulted in the carrying overboard of a ready ammunition rack, riveted to the deck, and full of 4-inch charges; the dishing in of the forward chart-house

bulkhead; and the smashing into smithereens of all the unshatterable glass windows of our built-in bridge.

The operation orders issued by Admiral Wilson at Brest were similar in essentials to those of Admiral Bayly at Queenstown. Also our mode of procedure on receipt of orders was somewhat similar, the main difference being that from Queenstown we often joined the outgoing convoy at some other port or at sea, and usually escorted the inbound ships to some other port, or dropped them off the Smalls; while from Brest we left port with the troop ships, and returned to port in company with troop ships.

It was natural of course that the troop ships, which were officered and manned entirely by naval personnel, should be more expert in keeping position in convoy than the merchant ships. The troop convoys, as a whole, were better drilled, and more prompt in reaching appointed rendezvous. Communications were efficient, both as to radio and visual signals. In fact, insofar as the escort commander was concerned, the duty with the troop convoys was a sinecure compared to that with the store ships. The stronger escort furnished the troop ships, together with their greater speed, lessened the chances of a submarine making a successful attack. On the other hand, we could not help but feel how much greater our responsibility would be should one of these transports be torpedoed while loaded down with troops. If a cargo ship was sunk her freight went down with her without much thought concerning it. But if a loaded troop ship were torpedoed, we of the destroyers would of course make every effort to save as many as possible of the valuable human lives.

This important question of how best to proceed in case a loaded troop ship was torpedoed was one of much concern. Then, also, there was the increasing chance of the Germans making an attempt to destroy a troop convoy by means of a fast and powerful raider. To cover these points, and many others, the destroyer commanders developed a doctrine which was issued by Admiral Wilson under the title of "Orders in Escort for Troop Convoy." It was modeled after "The Orders in Convoy," issued by Rear Admiral Gleaves as Commander of the Cruiser and Transport Force.

These orders in escort eliminated the necessity for the escort commander to issue a long detailed operation order each time

One of the new destroyers making smoke screen and laying a depth charge barrage

we went out. Everything was covered, from the manner in which to leave port, to the manner of returning. It became only necessary for the escort commander to state the time of departure, the order of getting under way, and the numbered position each destroyer would occupy in the screen. The rest became automatic according to the doctrine.

Of the twenty-three paragraphs in this order the last three will be reproduced here, as they indicate the destroyer tactics of the period, by detailing the procedure for action should a submarine be sighted, a transport be torpedoed, or a raider attack the convoy:

21. Following procedure will be followed if submarine is sighted. Always make visual and whistle signals indicating the submarine's presence.

(a) If near convoy—that is if almost within torpedo range, or if submarine has fired a torpedo, the destroyer first sighting the submarine or torpedo wake, and the destroyer on either side: i.e., the next ahead and astern, will attack by making depth charge barrage over the probable area. It is important that the two assisting destroyers lay their barrage at sufficient distance from the center one so as not to interfere.

(b) If the submarine is sighted on the surface at a distance of several miles, the destroyer nearest, or first sighting it shall open fire with guns and proceed immediately at twenty knots or best speed that state of sea permits, to attack submarine with depth charges. The next two destroyers shall also proceed on parallel courses using guns as long as submarine remains on surface. On arriving at probable position of submarine, the first destroyers will lay a barrage on the assumption that the submarine has taken a course directly away from the convoy; the destroyers on the right and left will respectively lay barrage on the assumption that the submarine changed course to the right or left.

(c) At night. Unless visibility is unusually good, one destroyer shall make the attack, as the danger of collision is great. Of course if a second destroyer sees signs of the submarine, it will attack also.

(d) In all cases, continue the attack and search

(1) Until the submarine is destroyed;
(2) Until the convoy is below the horizon, or longer, if there appears a chance of getting the submarine; or
(3) Until recalled by the escort commander.

22. Procedure in case transport is torpedoed.

(a) If there are no troops on board, the three destroyers making the attack will stand by the transport. After the attack is completed, the senior will circle the transport, dropping depth charges at intervals. The two juniors will pick up survivors as soon as conditions warrant. If the escort commander remains on the scene (as is probable for a while at least), one destroyer should be directed to rejoin convoy. So long as vessel

One of the new destroyers making smoke screen and laying a depth charge barrage

remains afloat, at least two destroyers will stand by. If she sinks, the two destroyers having survivors on board will return to port.

(b) If there are troops on board the same procedure will be followed, excepting that the destroyers detailed to pick up survivors will, as soon as loaded to capacity, proceed to join the convoy, and the two additional destroyers will then return to torpedoed ship and pick up survivors. This procedure will be continued until all survivors are rescued. It will be noted that one destroyer continues to circle ship and boats at all times.

(c) The capacity of destroyers for accommodating survivors will be considered as 600 for the smaller destroyers, and 800 for the larger ones. In bad weather this number should be reduced. In good weather the number could be increased, provided the emergency required it.

23. Procedure in case of attack by raider or raiders.

(a) Under all conditions.

(1) Assemble by divisions, using column formation. Make smoke screen between convoy and raider. This can be done whether raider is to windward or leeward, as in the first instance the smoke will blow down on convoy, and in second instance it will blow down on raider.

(2) The raiding force will then be attacked, in accordance with one of the following plans, which will be indicated by using the signals provided in the battle signal book.

Plan No. 1. Attack independently by divisions.

If only two divisions, attack from each bow of raider. If more than two divisions, other divisions attack from beams. Use smoke screen if conditions warrant.

Plan No. 2. Same as plan No. 1, excepting that second division will continue to smoke screen convoy, so long as that protection is needed. If there are three or four divisions, this duty would fall to the third or fourth division, as the case might be.

Plan No. 3. Attack by entire force together.

Each division attack through the smoke screen of another division. That is the division most favorably placed to make a screen does so. The division nearest to it proceeds through the screen, and if within torpedo range, fires torpedoes. If not within range, makes smoke screen, and the other division attacks through screen. This is repeated until successful attack is made.

Plan No. 4. Attack independently by ships.

In this attack the destroyers will separate and attack from all sides, closing as fast as possible.

(b) The two junior ships of the two junior divisions will not join attacking formation, but will screen convoy as long as possible, and then trail raider should she escape. If there are only two divisions, only the junior ship will perform this duty.

In order not to unduly alarm the troop ship commander, we had a little private code of our own for reporting contacts, submarines, and other ships. This code was attached to the Orders

in Escort, and led to rapidity of understanding. There was nothing in it that would be of value to the enemy should it be broken. There was not much chance of a German submarine successfully employing the code, as they used a different spark, aud our operators got to know the sending characteristics of the various ships that worked together.

I was often told by those on the transports that they were glad to see the destroyers, and that for the troops on board there was always a thrill at the sight of these little vessels, coming in from all directions to take their stations around the big ships. To them there was something mysterious in the way these shadows suddenly appeared from out of the ocean, just at the time rumor had it that they were due. But in fact it was all very simple. In accordance with the doctrine, the destroyers would be proceeding, in their allotted positions on the scouting line, where they had been sent at daylight. Then suddenly, perhaps two or three would simultaneously sight a smudge of smoke on the horizon. Whichever one had the smoke nearest ahead (this was known from their own relative positions) would flash out on the wireless the single code word, "contact." That was all that was necessary to start the concentration movement, so that when the destroyers were sighted by the troop ships we would already be converging on them from all along our thirty-mile front. And each destroyer, without signal of any sort, would stand for its station, wheel about, and unconcernedly begin its patrol at a distance of from 800 to 1,200 yards from the convoy. The destroyer escort commander would signal the ocean escort, which was usually a cruiser of the *Seattle* class, whether or not there were any orders for her, and that the destroyers would take over the escort duty. Immediately the big cruiser would reverse course, headed for home at the best speed her fuel on board would permit. Then the senior destroyer commander would signal to the convoy commander any special orders he may have had. After that—incessant vigilance until the big ships were safe inside Brest.

So impressed were the transport personnel by the joining of the destroyers, and so freely did they express their admiration, that even our naval officers, who understood the simplicity of the procedure under normal conditions, would at times become

enthusiastic and take official cognizance of the episode. For example on one occasion Captain E. T. Pollock, who was in command of the *George Washington,* made a report to Admiral Wilson in which he stated:

1. I desire to bring to your notice officially that when the Eastern escort made contact with this group shortly after daylight on the date set, the weather during the night had been thick and foggy, and it was still thick, visibility being about two miles.

2. The excellent manner in which they made contact under such conditions has been considered almost uncanny by the General Commanding Army Forces, as well as by the United States Senator on board.

It so happened that this convoy carried the largest number of troops that entered Brest at any one time during the war. There were thirteen transports carrying more than 40,000 men. The escort, after three sections had joined, was composed of sixteen destroyers.

It can readily be understood that we of the destroyers appreciated such a letter as this of Captain Pollock. While the finding of a convoy was usually simple, there were times when a certain amount of judgment had to be exercised as to when and where to start the scouting line, and the distance between ships on the line. If the weather had been such that both the destroyers and the convoy were doubtful as to their positions, owing to the lack of opportunity for obtaining fixes by observations, and if it was still thick when contact was due, it can readily be imagined that the destroyer commander would feel somewhat nervous as we moved forward on the line and no contact was made. And then, when a ship of the convoy was sighted, and the contact report came in, what a relief it was!

It was my good fortune never to miss a convoy, but there were several narrow squeaks—such as when the destroyer on one end of the line made the contact. On one occasion, during thick weather, a merchant convoy was ahead of schedule, and we picked up one of the flank ships just as we were starting to form scouting line.

It was probably the strong escorts afforded these inbound convoys that prevented the German submarines from making a single successful attack on one of them. But they did succeed in torpedoing several outbound ships, which were always more lightly guarded. In one of these attacks, that on the *Covington,*

*Navy Official Photograph*

"DENT"

A 1200-ton destroyer showing camouflage of our own navy department design

I happened to be the escort commander. This was the only ship, in more than five hundred that I assisted in escorting during the war, that I saw torpedoed. And I have always felt that the German submarine that did the deed had very good luck. In the first place, it was known at our headquarters that this submarine was operating on or near the designated track of the convoy. A message was sent for the convoy to change course, but, as sometimes happens, the message was garbled in transmission. When it finally came through in understandable form several valuable hours had been lost. The course was changed shortly before dark, and the convoy was still zigzagging, when without warning the torpedoing occurred. This submarine had evidently followed the then usual procedure of submerging ahead of the convoy, keeping on a heading at right angles to the course of the approaching ships and, instead of keeping a periscope watch which might make his position known, relying entirely on his listening devices. As soon as the propeller sounds indicated that the convoy had passed over him, up he would bob, and let fly a browning shot into the center of the convoy. Then, without waiting to learn results, he would make a crash dive and work himself away from the scene. The destroyers would undoubtedly shake him up with their depth charge barrage, but this was a chance he must take, and at times did take, when the escort appeared light.

We in the destroyers had recognized the change in submarine tactics, which forced them to remain submerged until the convoy and escort had passed over them, and had countered this move by having a destroyer on each quarter of the formation, in addition to one which covered the rear, whenever the escort was of sufficient size to warrant this disposition.

## FALSE ALARMS

In every kind of warfare there are more or less false alarms. But operations against submarines seemed to lend themselves to this form of disturbance and discomfiture, both for those who were hunting the enemy and for those who were on the defensive against him. Some of the alarms were due to illusions, and some just happened. Of the former class were those where some floating object was mistaken for a periscope, or where some

ship was reported as a submarine. The periscope false alarms were much more frequent, at first, than toward the end. But even to those who had the most experience would such occurrences happen. And when any one reported a periscope no chances could be taken; immediate action was necessary, just as if certain the submarine were there.

When on escort duty, my fixed rule, if any one reported a periscope, was immediately to drop a depth charge. The argument was that *if* a periscope was really seen the submarine was close aboard the convoy and therefore about to fire a torpedo. The explosion of the depth charge would let the submarine know that he was seen and being attacked, and might make him discontinue the attempt to torpedo, or cause a sufficient nervousness to make him miss even if he should fire. So there were several occasions where the convoy was alarmed by the *Wadsworth* or *Little* suddenly letting go a charge.

One of these last scares happened in August, 1918. The convoy of large ships had just formed up after leaving Brest, when two of my lookouts reported a periscope 800 yards on the port bow, and both said they had seen the glint of the glass. Immediately the depth charge, full speed ahead, and hard over rudder. Soon I also saw the periscope. But it turned out to be a lantern on a small buoy marking the end of a drift net.

And even as late as August, 1918, all of us awake at the time were disappointed that a submarine which crossed the moon rays only about a mile away, turned out to be a small French gunboat, which did not show recognition lights until we were nearly on top of her, in our great desire to ram. Such incidents as these, occurring at almost any time, kept everyone on the qui vive, and prevented the life from becoming too monotonous.

Of that class of false alarms which just happen, I had one or two unusual experiences. One very dark night while five destroyers were escorting the *Leviathan,* the officer of the deck reported to me through the speaking tube: "Fired a red star!" This signal called for a change of course to port, either because a submarine had been sighted, or because we were running into another convoy. When I reached the bridge, the huge hull of the *Leviathan* could be seen standing off to port. The following colloquy ensued between me and the officer of the deck:

"See anything?"

"No, Sir!"

"Who fired the red star?"

"I *think* we did, Sir. It looked as if it came from this ship."

"But *who* fired it? Where is the pistol?"

"Hanging in the usual place, Sir."

When the pistol belt was removed from the hook, the holster was found to be empty! A search on the deck of the bridge brought forth the pistol with its exploded cartridge. Due to the vibration, the pistol had shaken from the holster and had fallen on the deck, the hammer striking at such an angle that the red star shot out between the rail and the awning.

"Well," I said, "Let's fire a green star, and get everybody back on the course."

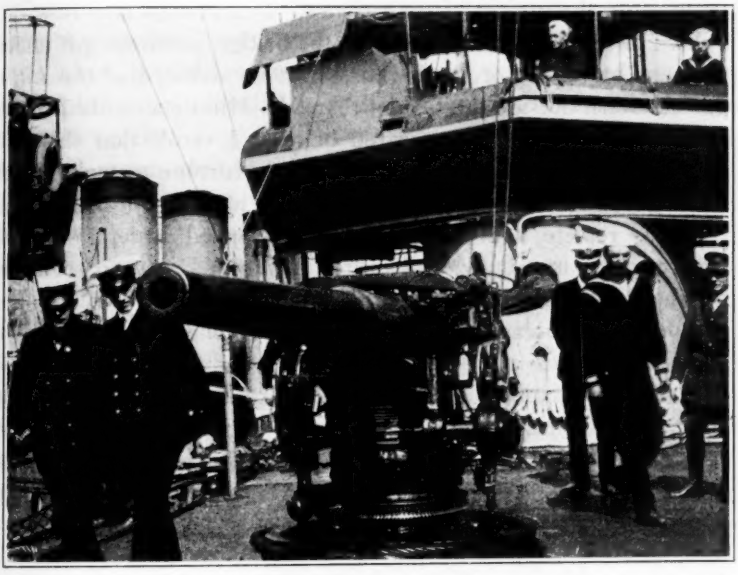
On another occasion, this time in daylight, while we were escorting a big troop convoy, I was eating lunch when the whistle gave a sudden prolonged blast. Rushing up on deck, I noticed the green submarine warning flag flying at the yard arm. Continuing to the bridge, I was met by the officer of the deck saying "False Alarm, Sir!" What had happened was very simple. The lookout in coming down from aloft carelessly let his foot slip, causing him to fall across the whistle cord. To save himself he grabbed at the first thing in sight, which happened to be the halliards of one of the submarine danger flags which were always kept rounded up at the yard arms. In this way he unintentionally completed the prescribed alarm signal, by sounding the whistle and breaking out the flag simultaneously.

## VISITORS

Neither while at Queenstown nor at Brest did we allow promiscuous visiting on board the destroyers. At no time were ladies permitted on board, and never did we have what might be called a party. But there were social visits from the officers of the allied services, and frequently when in port, would they break bread with us.

The lack of opportunity on the part of the people in general to visit the destroyers, together with the secrecy maintained in regard to their operations, undoubtedly had much to do with the feeling that it was an unusual privilege to see one of these vessels,

which privilege should be obtained if possible. So the commanders of the forces at both Queenstown and Brest had requests from many sources for permission to visit the destroyers and to make a trip in one of them. But the desire of people to see the American destroyers was not limited to those who had to ask for the privilege, but included many whom we of the destroyers considered it an honor and privilege to have come on board. While at Queenstown several high ranking British naval of-



British officers inspecting the forecastle 4-in. gun on the *Wadsworth*. This picture shows the gun before spray and wind shield were installed, and the bridge before it was built-in with glass windows.

ficers informally inspected the *Wadsworth*, and Captain E. R. G. R. Evans, R. N., made a four-day patrol trip with us.

During my three months' duty at Brest, the *Little* was favored on several occasions by visits from French officers. But the greatest honor we had was the visit of President Poincaré, who, accompanied by our Admiral Wilson, and by the French Minister of Marine and a large retinue of officers, spent three quarters of an hour on board the *Little*. On the President's departure I told him I would consider it an honor if he would send me his photograph as a souvenir of his visit. A few months later, after my

return to the United States, I received the photograph, autographed, and suitably framed.

Many newspaper men were, of course, anxious to take a trip on a destroyer. I had the pleasure of taking two of them out on the *Little*. One was a young American whom we all know by reputation, Mr. Frazier Hunt of the Chicago *Tribune;* and the other an elderly Frenchman, M. Grosclaude, a noted journalist.

Mr. Hunt came on board full of pep and energy, prepared to enjoy to the utmost his experience. I can recall now how delighted he appeared as he stood on the bridge, while we got under way and stood out of the harbor. But no sooner had the *Little* put her stern outside the Goulet than Mr. Hunt succumbed to the call of the sea, and disappeared below. I recall that this trip was one of the smoothest it had been my fortune to make. But to Mr. Hunt it was terribly rough! It so happened also that this trip was replete with incidents. We dropped a depth charge, fired our gun at a buoy, and started to ram a French patrol boat which was mistaken at night for a submarine on the surface. On each of these occasions I have a faint recollection of seeing a pale, gaunt figure come up the hatchway for a few minutes, and then shortly disappear to remain below until the next excitement brought him forth.

During Mr. Hunt's stay on board there kept running through my mind that song we used to sing on our practice cruises, the refrain of which went:

Oh Mr. Captain stop the ship,
I want to get out and walk!
I feel so flipperty, flopperty, flip,
I'll never reach New York—
Oh Mr. Captain stop the ship,
I'm sick of the raging main,
Hi! Hi! Call me a cab,
And take me home again.

I know that is the way Mr. Hunt felt. On arrival at Brest he could not get ashore quick enough. But the next day he came on board all smiles, and declared he had had the time of his life. He confided to me that as he had not seen much of the ship during his five-day trip, he would like to look her over! He then went ashore and wrote a series of three articles which were published

in the Chicago *Tribune,* and which were as good an account of our trip as it was possible to write.

Monsieur Grosclaude should never have taken a destroyer trip, as he was too old for that kind of life. Admiral Wilson tried to discourage him, but he insisted. He came on board shortly before we sailed, bringing with him four large suit cases. He was much perturbed because *most* of his luggage had not arrived. What worried him considerably was that his storm clothes were missing. So we furnished him with a full outfit, raincoat, sweater, boots, and southwester. Imagine the hit he made when, just before we got under way, he appeared on deck in this full storm regalia, it then being a beautifully clear and almost breezeless day! But if the dear old gentleman had not worn his storm clothes then, he never would have worn them, because if needed at sea, he would have been too seasick to get out on deck.

For a couple of days, M. Grosclaude did not eat anything, and I never will forget how pleased he was on the third or fourth day out when he succeeded in keeping down his tea and toast. My recollection is that he never did get beyond the tea and toast stage. Yet, after we arrived in port, he declared he would not have missed the trip for anything. He managed to get up on deck when the destroyers joined company with the inbound convoy, and to him this sight was worth all the pain and discomfiture he had been through.

The Reverend Melville Gurley and Dr. Harry Fosdick both made trips on the *Little.* They were overseas with the Y. M. C. A., and, of course, did not want to miss anything. Mr. Gurley, if I remember rightly, was the only civilian passenger we carried who did not get seasick. He was up and around at all times, mingling with the men and not missing a trick. He even conducted church services on Sunday, something we did not often have on a destroyer.

In Dr. Fosdick we found an unusually delightful and interesting shipmate, in spite of the fact that he was seasick part of the time. He took great interest in everything, and told us more about our Army at the front than we had heard first hand. He was much interested in our sailor men, and the life they led on board ship. The day we returned to port, he said something that

informed us, for the first time, that he was a reverend. I told him that no one on board knew he was a minister of the gospel, and said I hoped that nothing had occurred to hurt his sensibilities. He assured me that he had not heard or seen a thing that anyone could take exception to, and that he was agreeably surprised at the very little swearing he heard. He said when it came to swearing, the sailors were novices alongside the troops at the front!

In the midst of these false alarms, convoys, visitors, etc., a cablegram came detaching me from command of the *Little* and ordering me to the Navy Department for duty. This was the last of August, so it was not my good fortune to remain with the destroyers during the last two months of the war. My chief regret was that I missed the thrill of turning on all lights, the night after the armistice was signed.

(The End)

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# THE NAVAL POLICY OF THE UNITED STATES IN THE PACIFIC AREA

By Lieutenant (jg) W. P. Roop (CC), U. S. Navy

## I.

What strategy is to tactics, policy must be to strategy. Tactics deals with our procedure in the immediate presence of the enemy. Strategy gathers up the total of our naval resources and endeavors to bring them into effective action culminating in a favorable tactical maneuver. Policy seeks a still broader basis and develops a naval establishment in conformity with the objectives which the nation sets before itself, proportioned so that strategy, and in its turn tactics, may follow through to a successful outcome. Tactics forms the ships, strategy the fleet and bases, and policy the Navy.

If tactics and strategy are generally regarded as coming strictly somewhat more within the scope of the technical naval profession, it is partly due to a confusion of policy with politics. Politics, at its best, is the effort to influence policy. It is not part of the function of the naval officer to determine what the nation's objectives shall be. Their real choice lies with public opinion. It is the administration of the means for making national decisions effective that constitutes the primary function of the naval officer. However, it is not sufficient that we should accept certain matériel which is placed in our hands and keep it polished against the day when it may prove useful. The Navy has also in time of peace a campaign to carry on, namely, the setting forth to the nation of the necessities which potential war imposes. We may not tell the nation what it desires, or should desire, nor how to obtain what it desires. But we must consider the military consequences of the desires of the nation. We must clearly under-

stand what the national foreign policy is, and what its military implications are.

Questions of policy are largely questions of information. The best information we can get may be conjectural; unfortunately that is often true also in strategy and tactics. It is, of course, necessary to know the tactical power of the various elements of the various fleets. It is also necessary to know the strategic value of the various elements of power in the larger theater of actual or potential operations. It is still further necessary to know all that is possible to know of the impelling force of the motives that carry us toward war. Unless we are in some degree able to foresee the necessities which political policy is going to impose on the Navy, there is danger that in a crisis the Navy may be found inadequate. The obvious and simple solution is to have a Navy capable of answering all possible requirements. Now that it has been determined not to do this, we must give the most earnest consideration to the question as to what the actual requirements are going to be.

This conception of naval policy, though possibly somewhat broader than that of the Regulations *(N. R. 2053)*, is not inconsistent with it nor opposed to it. However, no detailed calculations as to our quantitative requirements in naval strength, as determined by our international relations, will be undertaken in this paper. It is desired rather to advance certain ideas as to the need for preparedness in the Pacific area, and as to the general lines which this movement might appropriately follow.

## II.

Suppose the Pacific and its littoral, with the five or six hundred million men living within its drainage area, to be replaced in our thought by a similar area affording similar contacts, among a similar number of beings totally distinct from the human race yet similarly homogeneous and with an equal capacity for communication. We can imagine that the multiform relations which would be developed in such a situation would have great interest for a person with adequate means for observation, and that systematic study would be considered justified, simply as a matter of scientific activity. The value of such scientific work, it is important to observe, would depend altogether on its character of disin-

terestedness (in the sense of personal advantage of the observer.) It is not possible for an individual man to form judgments in the actual Pacific situation that are absolutely impartial, and even less so, where he is one of the five or six hundred million. Nevertheless, if there is to be any clearness of foresight, it is most likely to proceed from exactly this sort of detached observation; such, for example, as that of the biologist in his study of an order of life totally distinct from his own. The strategist must arrive at the same sort of personal detachment. It is necessary, we will suppose, for the gun-captain to visualize the blows his gun can deliver, as being placed by a fist on some individual's chin. But as we proceed to consideration of matters of strategy and policy, it is necessary to think in terms of large units and ultimate purposes.

Now it is one of our characteristically generous American beliefs that there is room for everyone on the planet, if we will only stop fighting and work together. Our tender-heartedness even extends to the point of solicitude for the feelings of dumb brutes, as witness our laws against cruelty, and against use of animals in biological experiment. Since many persons never arrive at the detached viewpoint, even with respect to such a matter as vivisection, it becomes impossible in general for them distinguish between detachment and cruelty. This is an intellectual defect which must be overcome. Cruelty, of course, no one can condone. But what an absurdity it is to permit a distaste for harrowing thoughts to dominate our foreign policy! We set great store by the idea of equality among men; what we sometimes fail to perceive is, that even after the Declaration of Independence and the Emancipation Proclamation, equality can only be achieved by struggle. We have a noble ideal; let us hope that the course of world events may not lead us in the direction of abandoning the struggle to realize it. But if we are not going to abandon it, how can we undertake to declare our opposition to all international struggle, as a matter of principle? How can we yield to the easy belief that, having arrived at the premier position in the world in point of wealth and standard of living, we can continue to discharge the responsibilities of that position solely by entering on an evangelical campaign to convert the world to our own ideas of pacifism?

It is not possible that the modern world should tolerate the suppression of the individual incentives and humanitarian instincts, which have come to operate more powerfully in our own country than elsewhere. It is still possible, however, to claim a virtue in that loyalty to one's nearer associates, which transcends one's obligations to humanity at large. In fact, the stage at which the development of human character now stands is such that it is precisely in that devotion to our neighbors that we find our most effective antidote to the vagaries of an anarchism which, however beautiful it may become at some future epoch, leads, at present, only toward unhappiness, Altruism may eventually furnish the ruling motive in human relations; for the present it must be tempered with an intelligent regard for the necessities imposed by things as they are.

It is, therefore, necessary at the outset, not only to divest ourselves of passion and hatred, so that our views may be unclouded by our desires, but also to set aside those generous impulses upon which everyone would like to be able to act, and consider matters purely on the basis of our own best ultimate national interest. We believe ourselves to be free from aggressive designs. We believe, in a way, that the salvation of the world depends on America. Let us beware of the complacent idea that this belief is shared by everyone. We desire to see the world freed from the curse of war. Let us avoid the too sanguine hope that such a decisive and complete break with the past can be accomplished without risk and sacrifice, courage and determination.

## III.

What do men fight for? A very great deal of thought has been given to this question since 1914, and broadly two opposing opinions have arisen. One is that war is the culmination of a chain of circumstances, of a cycle of events; if only the chain can be broken at a single link, if only the cycle can be brought to its turning point without the mobilizations being set going, then the crash can be postponed; and possibly by a series of compromises the postponement might be continued indefinitely. The other view is that although war is catastrophic, superlatively wasteful, and subversive of nearly everything that civilization strives for, nevertheless it is the only method so far available for

the definitive resolution of certain deep-lying conflicts of interest. According to this view compromise leads only to the accumulation of grievance. The only way to put an end to war is to make it unnecessary, by finding another means of settling matters which war, however great its cost, does have the merit of settling.

Without further discussion we will accept the second of these theories. We will agree that the unity of the United States could not have been achieved, or the ascendancy of Germany in world-power could not have been checked, without war. We will immediately inquire what sort of questions they are which it takes war to settle. Broadly, there are two matters with respect to which men may arrive at that stage of desperation, where war is the only way out: one is their standard of living, the other is their inner convictions. There are two currents which may drift toward war; one proceeds from a conflict of economic interests, and the other arises in political or religious motives.

It would make a highly instructive study in economics to obtain a direct numerical comparison as to standard of living, between the various communities bound together by the Pacific Ocean. Such a study would encounter very serious difficulty, however, owing to the dearth of definite data. There might also be some question as to the standards of comparison. Many of the comforts which we enjoy, others profess not to desire.[1] We are, however, on fairly certain ground in establishing the following scale of standards, beginning with the lowest:

Malaysia.
China.
Mexico.
Japan.
South America.
Australia and New Zealand.
Canada.
United States.

The larger part of the Chinese population lives in such a state of chronic poverty, that the provision of enough food to sustain life monopolizes their attention. That the Japenese stand at a level intermediate between ourselves and the Chinese, is shown

[1] *Chinese Characteristics.* by Smith, is a rich source of information in this connection.

by the fact that American labor, when placed in direct competition with Japanese labor, is seriously embarrassed by the capacity of the Japanese to accept (we will not say withstand) greater hardship. And in the presence of Chinese competition, the Japanese is similarly embarrassed. In default of statistics we will cite a single case which, though possibly extreme, is typical.[2] Incandescent bulbs are at present being manufactured in Shanghai by an American firm. In America, in 1921, a daily wage of $10.00 was being paid for a daily task of 1,000 bulbs. In Shanghai the wage was forty cents for 2,000 bulbs. At that same time the actual cost of bare nourishment was not greatly different in Asia and in America. Rice raised in California was exported in quantities to Japan.

Comparisons like this are familiar enough not to require amplification. The disparity between the Asiatic standard of living and ours is so immense that, for our present purpose, it may be regarded as one of the fixed conditions of Pacific relationships that no person accustomed to average American living conditions would be likely to survive a complete shift to average Asiatic living conditions.

Now modern communications are having the effect of placing the various Pacific communities in new and intimate contacts with each other. The result of free intercourse will certainly be to give rise to a tendency to equalization of the standards. There are, of course, many forces by which the tendency to equalization is opposed. Thus customs duties and exclusion laws operate partially to restrict intercourse. Also in America the higher standards of consumption are paralleled by higher standards of individual productivity, the fruit of mechanical genius and a talent for efficient organization. Again, there are America's unmatched and untouched natural material resources. We may with certainty depend on retarding the process of equalization. But it is almost equally certain that we shall not be able to stop it altogether. The standard of living in Asia is rising. Is it rising fast enough to satisfy the pressure for equalization, opposed as it is by the various agencies which can be brought to bear? If it is not, then the only remaining alternative is that our own standard must fall.

[2] *Fortnightly Review*, January 22, 1922, p. 125, quoting from *American Manufacturers Record* of April 14, 1921.

An individual suddenly transferred from the average working conditions at Gary to those at Han Yang would simply perish. But a nation faced by the prospect of a lowered standard of living will certainly make desperate efforts to add to the strength of those forces, which we have mentioned as acting to retard the movement toward equilibrium. If the nation is unable by peaceable methods to resist a gradual decline, or even unable to maintain a moderate rate of progress, is it not fully to be expected that there will be an attempt to establish more favorable conditions by an appeal to force? We are confronted, we will say, with this situation: Chinese development proceeds to the point where an industry requiring large quantities of unskilled and semi-skilled labor, based on extensive natural resources—in a word, the steel industry—is carried on more cheaply in China than in America, and very much more cheaply, so that Chinese steel can be delivered on the Atlantic seaboard with a margin of thirty per cent for duty and still meet competition from Pittsburgh. Steel consumers are able to prevent an increase in the tariff. Every possibility of cheapened production in America has been followed through. American sales managers will certainly not overlook the alternative of forcing an increase in Chinese costs but control of Chinese production is found to be firmly held in other hands. Is not some sort of intervention almost inevitable? A billion dollar corporation at home has passed dividends for three years. The basic industry is sick. Millions of men are unemployed. An American diplomatic mission in an Oriental city is engaged in negotiations. Murder in the Orient is sometimes lightly regarded; a number of American officials lose their lives in suspicious circumstances. What American administration could resist the pressure for war?

## IV.

Turning to the matter of political and religious ideas, we find again, among the various nations of the Pacific, very wide differences, not only of degree, but of kind. Whatever the number of nominal adherents to the religions of self-abnegation may be, religion seems to exert no restraining influence on aggresive enterprise. While the intense individualism of America finds some counterpart in the extremely decentralized social order in

China, both are sharply contrasted with the highly developed national organization of Japan. Military matters, especially, are handled by Japan with a directness which is impossible in our own case.[3] And combined with these contrasted orders of social organization, we find Japan and America each holding fast to the conviction that it has a certain mission in the world. Thus, our effort to Christianize the Orient generally, and the formulation of our Open Door policy; and on the other side we find such a sentiment as this:[4]

> "The rise of Japan and the abolition of extra-territoriality have exploded the superstition that the world is to be ruled by the whites."

It is impossible to peruse the quite voluminous literature in this connection[5] without realizing that we are here approaching the fringes of a highly controversial subject.[6] There is nothing at all to be gained by entering into the merits of this controversy here. Reference is made to two books by British authors which may be specially commended for their impartiality and clearness.[7]

Leaving aside all questions as to Japan's intentions in California, China, Manchuria, and Siberia, all question as to the "yellow peril" and the "white peril," we will content ourselves with the observation that the unbalance in the standard of living as between Asia and America, together with the contrast between the two civilizations expanding and developing on the opposite shores of the North Pacific, create a situation the like of which in the past has never failed to lead to war. If war is to be averted in this case, it will require positive constructive action of a kind which was not available to prevent the disaster of 1914.

## V.

The effort to maintain peace in the Pacific might be directed along either of two different lines: we might endeavor to establish another method besides war, for accommodating and re-

[3] Professor Sazuko Yoshiro explains, in Chapter V of *What Japan Thinks*, MacMillan, 1921, that such popular control of government as may exist in Japan does not extend to military affairs.

[4] Count Okuma, in *What Japan Thinks*, page 168.

[5] See, for example the bibliography in *Current History*, March, 1922.

[6] The writings of G. B. Rea, and T. F. Millard, two American journalists in Shanghai, have especially served to provoke indignant replies.

solving the existing conflicts of interest by formulating statements of principles for guidance in settling disputes and obtaining, by force if necessary, adherence to these principles; or peace may be maintained by the traditional method, imposed by the unquestioned superiority of a single power, or a coalition of powers.

In considering these matters we must not overlook the possibility that the peace may be preserved to our own disadvantage, and that this might occur by either of the processes which we have mentioned. We can depend on it that no generalized principle will work for us and against our neighbors all the time. For example the acceptance of the Hay doctrine with respect to China is held, in some quarters, to establish a principle which, consistently adhered to, would open the door in California. And as to an imposed peace, what assurance is there that it might not sometime be imposed from the West, by a military force based on the man-power and material resources of the Asiatic mainland? Without shouting about the "yellow peril," it is nevertheless necessary to take these eventualities into consideration.

Let us adhere to fact and avoid controversy. Nothing can be clearer than this: by the terms of the agreements reached at the Disarmament Conference at Washington, one of the various possible courses of events is definitely excluded, as far as the immediate future is concerned. The United States, by agreeing not to fortify any of her possessions west of Honolulu, has definitely withdrawn to a position from which Asiatic waters are entirely out of the range of action of naval forces of the types now available. Guam is 3,300 miles from Pearl Harbor. In the hands of an enemy it could not be successfully attacked without the establishment of an intermediate base, and the guarantee of secure communications between that base and the American mainland. For such an enterprise our present naval forces are entirely inadequate. It is therefore an accomplished fact that the United States is incompetent to enforce peace in the Western Pacific. In view of Mr. Bywater's masterly exposition of this subject, it is unnecessary to expatiate further upon America's weakness there —a weakness which the agreement not to fortify bases west of

[1] *Japan's Foreign Policies*, by A. M. Pooley.
*Sea Power in the Pacific*, by Hector C. Bywater.

Honolulu has immensely accentuated since Mr. Bywater's book was written.

Does this signify the entire withdrawal of the United States from Asia, and the abandonment of the Hay Doctrine? In the military sense, yes. In the political sense, no. The same conference was the occasion for the reaffirmation of the Hay Doctrine, the supersedure of the Anglo-Japanese alliance, and the abrogation of the Lansing-Ishii agreement. We reassert all our claims to influence in Asia, and accompany these assertions by a military withdrawal.

It would seem that this would limit future developments to two alternatives: either we will depend on the force of reason and the world's public opinion to prevent peace being imposed from the West, or else we will depend on the strength which China can develop on her own account to prevent the use of her great resources by another power for the purpose of obtaining the mastery of the North Pacific. In point of fact there is a third alternative. It is the alternative which seems most likely to be chosen, and it furnishes the key to our future naval policy.

The third alternative is this: dependence will be placed on naval power which is potential only. In the past, the existence of a fleet in being has been the power that has served to resolve the *impasses* of diplomacy. It is now expected that the capacity for rapidly creating such a fleet shall serve the same purpose.

## VI.

Let us examine the implications of this idea. First of all it is necessary that the matter should be very clearly understood, both by ourselves and by our potential enemies. There is no way in which naval power can more surely lead us into war than by giving an impression of weakness which we do not intend shall exist. We insist on the considerations for which we believe our potential strength should command attention, while from the other side the flow of events is too apt to be influenced only by our actual strength. It lies in man's nature to discount the future. If our potential strength is to be left undeveloped, we must at all events make it clear to what extent it would be developed if circumstances should require. Otherwise, we will find it necessary either to acquiesce in a situation involving the loss of prestige

and influence, which would go with exclusion from Asiatic affairs, or else we will find it necessary to carry through to a conclusion a war which will ultimately require the development of a very large part of our latent power.

As it happens, total permanent withdrawal from the Western Pacific is not consistent with our past policy, is not consonant with our obligations already assumed there, nor is it conducive to our own best interest. There appears to be no actual intention of thus reversing our policy, but the important thing is that this should be clearly understood.

The unambiguous statement of our intentions, so far as we ourselves know what they are, with due precautions to prevent a *double entendre* such as will sacrifice the peace of the future to the convenience of the present, thus appears in the light of a solemn duty, a substantial contribution which we could and should make to the cause of war-prevention. But this is not the only responsibility thrown upon us by the present situation. We have boldly stepped in and pursued an energetic initiative in the diplomacy of the Pacific. The best traditions of our Pacific policy have been upheld and extended. If it ever was possible for us to assume an attitude of indifference, neutrality, and non-intervention in Pacific affairs, such an attitude has now become impossible. The isolation from Europe which the Monroe Doctrine was designed to maintain, and of which our non-participation in the European conferences is the latest phase, is not paralleled by our Asiatic policy. The Hay Doctrine is the outgrowth of American ideas applied to Asia. These ideas are fundamentally pacific, but the application to Asia is fundamentally aggressive. Whether the motive be economic and strategic, or whether it be the evangelization of the world for democracy, in any event the fact is that we are committed to participation in Asiatic affairs; and by taking the lead in the Disarmament Conference we have increased, rather than decreased, that commitment. Whatever happens in Asia and in the Pacific, we are in large measure responsible. The treaties of 1922 occupy a central place in the international law of the Pacific, and they are our treaties. We must be a party to any action affecting the treaties or the matters with which the treaties are concerned. Whatever the terms of the treaties or of future trea-

ties, the fact is that we occupy a leading position in any negotiations as to the relations of the world-powers to Asia. Whatever we have to say about Asia will receive attention; and if we say nothing, that also will have its significance. Nothing that we can do, or refuse to do, can alter our responsibility for peace in the Pacific.

The question as to how we may best proceed to preserve the peace is one for which an answer must be found. What means are there for protecting our standard of living from Asiatic encroachment? Is trade with China, present and potential, of sufficient importance to warrant active governmental support in its development? Is our influence for advance in living standards, for stability and freedom from foreign domination in China of sufficient value to China, to the world, and to ourselves, to justify the effort to extend it or to maintain it? Are the Philippines, from any point of view, worth keeping? Can we afford to lose prestige in the Orient, as we necessarily would by abandoning our experiment in colonial administration What means, if any, are necessary to forestall the establishment of an Asiatic hegemony, directing China's material resources and man-power to the military or industrial mastery of the Pacific? Where is the line between yellow and white to be drawn? All these questions must be answered. By undertaking to limit the capacity of the interested powers for obtaining the answers through the use of military means, we undertake the responsibility for establishing the principles upon which to found the peaceable adjustment of the difficulties. If this responsibility is to be accepted, the Washington Conference marks a beginning and not an end.

## VII.

Suppose, on the other hand, that we decline to accept this responsibility for solving these problems peaceably. They will not solve themselves. The peace cannot be maintained simply by limiting armaments. If the force of reason be not established, inevitably the appeal to arms ultimately will be made.

War, we will suppose, is again a reality. Guam and the Philippines are still subject to our military control, but both are to be had for the taking. Will they therefore be simply evacuated by the American forces? Certainly not. Every effort must

be made to retain them and to prolong their resistance to capture. Such resistance is of the greatest value in gaining time for subsequent operations. Had there been no desperate losing fight at Liège and at Mons there would have been no Battle of the Marne. Such resistance has especial value in view of the probable effort of the enemy to deliver an energetic surprise action at the start, probably against the Panama Canal, with the intention of closing it before the junction of our fleets. The prevention of such a success might depend on a week's resistance at Manila.

Let us consider this point somewhat more in detail. The effectiveness of the fortifications at Panama has been questioned. It is certain that dependence is placed on the very great superiority of a shore gun over an identical gun afloat. Without passing judgment as to its probable success, it is safe to assume that some effort to close the Canal will be made. Now in the case of a very sudden onset of war, it is quite possible that the junction of our fleets might be delayed by reason of the limited overhaul facilities in the Pacific, necessitating use of the Atlantic docks. Of course the closure of the Canal at any stage would be a very serious setback, on account of the interruption of the stream of supplies; but it would be doubly so if it occurred before the Atlantic Fleet went through. Railroads can deliver supplies, but not ships.

Manila in our hands would embarrass the attack on the Canal. It might not be possible to make use of Manila directly to prevent operations against Panama, for Manila does not flank the great circle route to Panama, any more than Samoa flanks the route from Honolulu to Panama. Nevertheless the delay necessary for taking Manila might be sufficient to turn success into failure at Panama. Or if operations against Manila and Panama were carried on simultaneously, the division of forces might have the same effect. Again, if operations against Manila were postponed until after the attack on Panama, failure at Panama would open the way to an early offensive on our part, in which the continued possession of Manila would not be entirely without value. It may be questioned whether any major ships would be risked in early operations against Manila or its communications. Defense against attack from other vessels would be a matter of keeping the communications open to the garrison operating against the enemy's investing forces, with offensive operations against his

water communications. With our battle fleet intact, the maintenance of these communications would be a matter of the rapid development of a sufficient tonnage of cargo carriers and troop transports, with suitable protecting armament and convoy. If with the help of such forces Manila could be held temporarily, the problem of relieving Manila would be primarily one of providing the troops, munitions, and transport necessary for land operations, and of creating an island base for operations against the enemy's water communications.

Guam, it is assumed, would be lost at an early stage. Its value to our forces would be very great if it could be retained, but it could not. Its value to the enemy forces would not greatly add to that of the numerous island bases already available. These island bases would constitute a constant source of difficulty to our line of communications, and this difficulty would be greatly increased if any of them should be sufficiently fortified to be able to resist attack without the support of mobile forces. However it is now agreed that none of them shall be so fortified. We may therefore assume that such island bases will have only such protection as it may be possible to provide after war begins. Under these circumstances, the only advantage either belligerent will have over the other will lie in the relative distances of such bases from home ports. If the enemy can maintain his island bases more successfully than we can, he will cut our communications with Manila. But if we can maintain the advantage in the island bases, it will be possible for us to cut his communications with Manila.

The defense of Manila is almost purely a strategic and tactical matter. The questions of policy were settled by the Disarmament Treaties. If Manila can be held for a few weeks, an adequate merchant navy and an assured supply of munitions would be of great assistance in the relief of the city. But the potential Navy before referred to will play no great part. If the potential Navy cannot prevent the war, it may possibly assist in ending the war if, and when, Manila is relieved. But it is far more likely that the outbreak of war will force the conversion of the potential Navy into an actuality.

## VIII.

Manila has fallen. Every objective is now shifted. Manila is no longer of any importance. If Manila had been relieved, there would have been an opportunity for a peace that would leave the prestige of the United States unimpaired, and our reputation for non-aggression heightened. But with Manila gone, no choice remains. The mastery of the Pacific must be obtained, once for all. If we do not obtain it, the enemy retains it. His sea power must be effectively extinguished. It is clear that the weapons that we now possess are totally inadequate, for the essential objective is control of the Straits of Korea and the establishment of a blockade. This necessitates the destruction of the enemy fleet, which is impossible to accomplish from Pearl Harbor. Guam must be recaptured, and a first class base established there; the new fleet must be built, manned, supplied, docked at Guam, and guided to victory.

There are recruiting and training problems of course, financial problems, publicity problems, and no end of others. But behind all these is an immensely greater task, in attacking which our efforts in 1917-18 will have to be greatly surpassed. It will not be possible for us to win the war in the Pacific with anything less than the mobilization of the entire nation. The Navy has been preoccupied hitherto with development of a fleet, and to a less extent with the personnel to man it. It is now generally realized that new bases are more important than new ships. But it is not yet generally realized that in the Pacific these bases will have to be so located, that logistic problems of an absolutely novel order are presented. We must project into the remote Pacific not an airplane force, with a range of 150 miles, not a battleship force, with a range of 2,000 miles, but a complete shore establishment sufficient for maintaining the airplanes, the battleships, and a very large number of the various other types of vessels. Home production must be adjusted not only to supply the fleet, not simply to supply the munition workers with food and necessaries, but to the creation and maintenance of a base in the Far Pacific larger than all the American bases now existing in the Pacific. Operations like these will necessitate a nation-wide organization, of a quasi-military character, for purposes that are industrial.

We have, of course, a national industrial organization, and this

organization is, for purposes of peace, highly effective. Given time enough, war can convert this organization into one that is moderately effective for purposes of war. But that is by no means sufficient. We must have the means for accelerating this conversion. It is fair to suppose that public opinion will be convinced that war is necessary. Everyone, we will say, will be anxious to help. But good intentions will not turn the trick. There must also be leadership. Our industrial campaign must be planned in advance. Upon whom can we depend for this leadership? Upon the civilian captains of industry? Yes, far more than was possible before 1917. Thousands of men now influential in American industry saw service with the Navy in 1917-18. But these men lost no time in returning to their civilian occupations. The Navy has entered into their experience, but now it lies in the background. We can depend on these men to bring the Navy to the forefront of their attention after the war has begun. But that is going to be too late.

*The industrial campaign must be planned in advance as carefully as the military campaign.* This is the chief requirement of the policy of the potential Navy. In the event of the fall of Manila and the conversion of the potential Navy into an actual Navy, *the industrial campaign will have to be won before there will be an opportunity for any further military action.*

## IX.

From an industrial point of view the Navy is not adequately prepared, and is in danger of going backward rather than forward. The Navy Yards, after having been built up to a very high level of achievement, are relapsing into the state where the principal concern is the matter of determining what men will be least difficult to get along without. As to the officer personnel, the outstanding feature is a sterile discussion of amalgamation of staff corps with the line. The burning question is this: how can the Navy's capacity for effective industrial action be increased consistently with other requirements?

The Navy Yards must be saved. There is talk of making the necessary dispositions so that their plant and personnel may be available for competitive bidding on government work outside the Navy. May the talk presently lead to action!

But it is perhaps even more important that the officers of the Navy should be led to realize their new responsibilities and adapt themselves to the new requirements. At the present time officers qualified for industrial responsibilities are limited to the Construction Corps, the Supply Corps, and those line officers who, while on Navy Yard or inspection duty, give serious consideration to the industrial features of their work. If the present proportion of line duties to industrial duties is as 4 to 1, a reasonable value for this ratio would be 3 to 1. It is not proposed to increase the percentages assigned to the Construction Corps and the Supply Corps, but it is maintained that the relative importance of the industrial functions of the Navy, as compared with the line functions, is greater than is at present generally allowed. The industrial functions are not so highly specialized that some of them cannot be successfully carried by line officers who set themselves to the task, but they would be more successfully carried on than at present if their importance were more fully appreciated. The trend of modern industry is in the direction of functional organization; every person must have a definite job, know what it is and be fitted to do it—not only the passer boy, but the foreman and the superintendent as well. In time of war, as well as in peace, industrial supervisory functions will be exercised by line officers. It is a matter of the utmost military necessity that these functions should be performed efficiently, and with knowledge of the limitations of industrial, as compared with purely military, organization.

It is suggested that younger line officers who are temperamentally inclined that way should be encouraged to interest themselves in industrial management and increase their familiarity with it, not only by reading and some form of instruction, but also by practical contact with men of experience, even though these should happen to be staff officers or civilians. There are deep-lying differences between naval administration and industrial administration. Neglect of the second may easily be as fatal, in a war in the Pacific, as neglect of the first would surely be.

Our great fault in 1917 was the year's delay between making up our minds and getting started. What was then done in twelve months, we must next time be prepared to accomplish in less than twelve weeks. We remember the grim comment that every day

the war continued cost us $25,000,000. In a war in the Pacific the cost of delay will be measured in larger units, if, indeed, it does not lead to consequences that are irretrievable.

We must have an efficient, even if moderate, force afloat, with adequate supply and repair bases. If behind that we can combine, with a suitable reserve and auxiliary force, an industrial organization capable of prompt action, and if the facts are known and our intentions clear, Manila may never be invested. If Manila is relieved, our potential Navy may possibly assist in the conclusion of an honorable peace. And if Manila should fall, there is nothing that would shorten the duration and diminish the cost of the long war that would follow, as much as immediate successful attack on the industrial problem.

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# A "WRINKLE OR TWO" IN HANDLING MEN

By Captain E. J. King, U. S. Navy

Practically all of the herein described "wrinkles" have been tried out and found useful in dealing with men. While the writer does not recall having seen or heard of many of them during some twenty-five years of service, it is more than likely that all of them came to his knowledge and attention in that way. It is known, however, that most of the practices herein described are not in general use in the service. It is hoped that their relation may prove of interest and possibly of profit.

## Holding "Mast"

First, the preliminaries of holding mast should invariably include the assembly of all concerned in the uniform of the day. Whether this takes officers and men from their work for a longer rather than shorter period would seem to be of little relative consequence compared with the advisability of indicating to "all hands" that the holding of mast is an "occasion," as it is. The commanding officer, representing the Government (Secretary, President, People), is about to hold court for the administration of justice.

Second, men who are up for commendation, for swearing to claims, beneficiary slips and for similar reasons should be dealt with before delinquents.

Third, the division officer of each delinquent should be present as a competent witness as to character, reliability and general conduct. The division officer should be called upon for a statement by the commanding officer before decision is made in a given case.

Fourth, when all is ready for dealing with the delinquents,

the commanding officer should himself read aloud Article 1 of the Articles for the Government of the Navy:

> The commanders of all fleets, squadrons, naval stations, and vessels belonging to the navy are required to show in themselves a good example of virtue, honor, patriotism, and subordination; to be vigilant in inspecting the conduct of all persons who are placed under their command; to guard against and suppress all dissolute and immoral practices, and to correct, according to the laws and regulations of the navy, all persons who are guilty of them, and any such commander who offends against this Article shall be punished as a court-martial may direct.

The reading of this article will serve to indicate clearly to all present that the proceedings thus begun rest on the firm foundation of the basic naval law, and to emphasize the impartial and judicial nature of the proceedings. It is sometimes well, before this reading of Article 1, to explain in a few words the origin and history of the Articles for the Government of the Navy.

It may also be advisable, on suitable occasions, to read further pertinent extracts from Articles, as Article 8 (1) in a case of gambling:

> Such punishment as a court-martial may adjudge may be inflicted on any person in the navy.
>
> (1) Who is guilty of profane swearing, falsehood, drunkenness, gambling, fraud, theft or any scandalous conduct tending to the destruction of good morals.

Fifth, many men—most of them, in fact, are helped to a better presentation of their own cases where they are asked "What seems to be the matter?" "How did this happen?" or similarly phrased questions indicating a desire to hear all that the man may have to say in his own behalf. The usual stereotyped "What have you got to say?" is likely to invite a hopeless, defensive, or even resentful attitude, which is not helpful to the main issue—that of the administration of justice.

Sixth, in some cases it is useful, before announcing a decision, to read aloud that part of Article 24—the punishments that can be awarded by a commanding officer—relating to men.

Seventh, the foul language used by all too many of the men is an abomination—soap and water for washing the mouth may be effective but is probably of doubtful legality—but extra duty as special masthead lookout will put the offender in a "cleansing" atmosphere, for a time at least.

### PROBATION WITHOUT TRIAL

Still another method of dealing with delinquents would appear to merit consideration. In cases where trial by deck court or by summary court-martial is indicated as commensurate with the nature of the case and the character of the evidence, it might be well to consider placing the man on "probation without trial."

Such a procedure could only be used: first, where the nature of the case permits; second, when it is the man's first serious report on his current enlistment or his first offense for a long time (say, over a year); third, with the distinct understanding that if the man again commits himself he will be tried for this offense, as well as the new one. It should be clearly made known that if the man completes his probationary period (three to six months) with good behavior, the award on the original report will be "cancelled" or altered to "warned."

The incentive to the man is obvious, while the discipline of the crew if anything may be expected to improve by such a procedure. A "by-product" is the elimination of time and energy in carrying through the trial by the convening authority, the members of the court, the reviewing authority, and many others. It is, in effect, the employment of "suspended sentence" by the commanding officer.

The only point in this suggestion which seems to require confirmation is whether it is permissible thus to involve the delay in trial of the original offense, as is inevitable in a case where a later offense makes necessary trial for both. But the circumstances in such cases seem to justify probation on the one hand and to sanction delay on the other.

### RELEASE FROM CONFINEMENT

Men released from solitary confinement should be required to bathe and put on clean clothing throughout and should also be given a haircut and shave. They should then be brought to the mast and formally released by the commanding officer, who can appropriately say something like this: "Well, Jones, you did so and so and you have had to be punished for it. Now that your punishment is over, just remember that the slate is clean and you can now make a fresh start."

Formal release from expiration of confinement or other punish-

ment by sentence of a court-martial, and especially upon completion of periods of probation where months have elapsed since offense, trial and sentence, can well be dealt with in a similar manner. It would seem to be helpful to a man completing his term of probation to be told that entry to that effect will be made in his record.

### HONORABLE DISCHARGES

Men entitled to honorable discharges are due to receive some attention above and beyond those who are only entitled to ordinary discharges. Men receiving dishonorable, bad-conduct, and undesirable discharges are usually read out of the service before the assembled ship's company. It would seem that the least that can be done for men entitled to honorable discharges is to see that they receive their honorable discharge certificates and honorable discharge buttons from the commanding officer himself. The commanding officer may well say something like this: "Well, Smith, you have completed your term of enlistment and are about to be discharged—you are to be congratulated on having successfully completed your contract with Uncle Sam in such a way as to receive this honorable discharge certificate which I now hand you—and your honorable discharge button, which you may well be proud to wear."

The man may then be asked what he intends to do—if he says re-enlist it is usually practicable to say, "We'll be glad to have you with us (or in the service) again." If he says that he is going to make a try at it in civil life, suitable comment can be made, as: "Well, Brown, we all wish you every success and every good thing in life. We all expect, and feel sure, that if Uncle Sam should say he needs you at some time in the future, you will be prompt in returning to the service—and we will all be glad to see you."

Such a little "ceremony" takes only a moment or two of time but it would seem certain that such considerateness will loom large in the memory of the man so dealt with, that his recollections of the service will be colored by the manner of his discharge, and that the benefit to the service will be appreciable.

## ARGUMENTS

A great number of reports made by petty officers and others in authority will be found largely to have been carried into the "report stage" as the outcome of an "argument." This is an all too prevalent practice that is destructive of discipline.

The petty officer is, or should be, right, and therefore must be taught how to stop the general tendency to engage in an "argument," even if the "argufier" is a free-born American citizen.

Probably as useful a method as any is the precept—and practice—of that trenchant saying of Theodore Roosevelt which runs somewhat in this way:

*"Guarantee to every man his full rights—and exact from him the full performance of his duty."*

# DISCUSSION

## A "Wrinkle or Two" in Handling Men

By Captain E. J. King, U. S. N.

Captain L. McNamee, U. S. N.—The question of the best method of handling men is always timely and one which in the past has received too little discussion by experienced officers. The opinion of a ship's officers and men as to whether or not they are getting a square deal from the Captain is directly reflected in the morale of the ship's company.

I am in cordial agreement with most of what Captain King recommends and will therefore confine myself to some points, on which I would be inclined to make reservations. I quote "men who are up for commendation, for swearing to claims, beneficiary slips and for similar reasons, should be dealt with before delinquents." Men for commendation yes, but the others should be seen by the executive officer at another time and place. If necessary the Captain can administer oaths better in his own cabin.

Mast should not be made tedious and tiresome with extraneous matters, but should be kept strictly to the object in view—to publicly reward the good and punish the wicked. The reward of the good is just as important as the punishment of the wicked, and it is important that those who have committed offenses should have before them as an example their shipmates, who by especially meritorious actions, are receiving on that account the personal consideration and recognition of the Captain, which the others are denied only by reason of their neglect, delinquency or comparative inefficiency.

Enlistment records have a column for record of offenses and meritorious acts, but if one examines these records in nine cases out of ten, to be conservative, nothing appears but offenses. The "meritorious mast" is just as important as the "punishment mast," and the reason for a meritorious entry should be as carefully inquired into as the nature of a delinquency. Fulsome praise as well as unqualified condemnation should be avoided in serving out even justice. The "meritorious mast" was given a thorough trial with great success under Admiral Wilson when he had command of the fleet.

I agree with the writer about the abomination of foul language, but the resort to extra legal punishment such as washing out the mouth, etc., would be rather inconsistent with the recommendation of a previous solemn recital of the punishments that may be awarded by a commanding officer.

Nor do I agree with the advisability of giving "lookout" duty as a punishment. Any duty prescribed as an extra duty for punishment has the effect of lowering the standard of that duty, whereas a lookout should be

impressed with the great importance and responsibility of his post. Extra duty is always a problem, but in my opinion, it should be confined to extra and unusual cleaning, of which there is always necessity on board ship.

In regard to the reading at the mast of the Articles for the Government of the Navy there may be special cases where it might be advisable, but if made a matter of routine it would soon degenerate into a meaningless formula. It should be done once a month with great formality at a general muster. Few men have ever doubted or questioned the right of the Captain to punish and such technicians are usually sea lawyers that know the regulations better than the old man.

The practice of putting men on probation is an excellent one and works well in practice. It is best, however, to apply it when the ship is off on a cruise away from home ports. That is, where it is reasonably sure that the man will have an opportunity to serve out his probation and not be transferred to another ship where a new transgression could not bring about punishment for the old offense.

There is one point I would like to emphasize and that is in hearing cases at the mast everything should be done to help the man in his own behalf. Whether his case is good or bad he should be encouraged to get it all off his chest. If the Captain sympathizes with him and really makes out a better case in his defense than the man could do himself, then he is sure when the punishment is assigned that the Captain was at least not prejudiced against him. Any man who leaves the mast with his story locked up and rankling inside of him has been permanently injured and not benefited by his punishment.

The greatest problem with which Captains have to contend is what to do with boys that are reported as *worthless*. In very few cases is this verdict a just one. If the boy is physically or mentally defective he should be discharged, but most cases are due to poor handling and neglect of personal attention on the part of division officers. The best thing to do in cases where discharge does not appear warranted is to transfer the boy to another division. If this fails to effect improvement he should be placed in a "preparatory squad" under the constant supervision of a chief petty officer. This squad should be a permanent working party with separate mess and distinct from all other divisions. They should be required to turn out one-half hour before reveille, bathe, put on clean clothing and turn to. They should have daily bag and bedding inspection and be exercised and instructed constantly until they are recommended for return to their divisions. By this method I have seen the most hopeless characters transformed in a couple of weeks into the most valued men of a division.

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# LETTERS OF A RETIRED REAR ADMIRAL TO HIS SON IN THE NAVY

By Rear Admiral A. P. Niblack, U. S. N.

## Letter No. 13

## FRENCH FINANCES. FRENCH CULTURE. FRENCH "KULTUR."

Hope Farm, Long Island,
January 5, 1923.

*Dear Son:*

In your letter from Oran, Algeria, you say that, since your visit to Tangier and Morocco, you have become deeply interested in French North Africa. To me it is a real land of romance which, although overrun, in turn, by the Phoenecians, the Romans, the Byzantine Greeks, the Teutonic Vandals, the Arabs, the Moors, and the Turks, still retains the primitive character stamped on it by the Berbers, the original inhabitants, in historic times, of this rich and vast area and the most considerable part of its present population. In the Middle Ages, Spain, Portugal, Denmark and Holland seized upon and subsequently relinquished various areas in Africa, but geographically and ethnically North Africa has not only been cut off from Central and South Africa by the Great Sahara Desert but by the slave trade, and has been cut off from Europe by the struggle of the Moslems against Christian Europe. Curiously enough, the slave trade helped to isolate Central Africa and the crusade against the slave trade was the cause of opening it up.

The opening of the Suez Canal in 1869, following Dr. Livingstone's explorations and crusade against the Arab slave dealers, started a great scramble in Africa; with the Belgians in 1876, in the Congo; the Germans a few years later in the west and east;

and by British chartered companies in the south. By 1891, Africa had been portioned out among the European powers and only Liberia and Abyssinia remain as independent countries. Missionaries were the advance guard; then followed the British and other trading or chartered companies; then "Spheres of Influence"; then annexation. Exploitation has taken the place of colonization, but it remains for those who control them to face the problems of the relations between the white and the black races. France has been particularly clever in this respect, for the natives are fast educating themselves and beginning to feel a real sense of race consciousness.

The Berber stock constitutes one-half the population of Tunisia, three-fifths that of Algeria, and two-thirds that of Morocco, and this is due to the conformation of the Atlas Mountains, whose two parallel ranges traverse the whole of French North Africa from the Atlantic region to Cape Bon. Whenever their country has been invaded the Berbers have taken to the mountains or to the great Algerian plateau which lies between the Mediterranean and the Saharan ranges. The average height of the Atlas Mountains in Morocco is about 10,000 feet but they taper off in height toward Algiers and Tunisia. The Berber stock is, therefore, in direct proportion to the heights of the mountains which have given them shelter in days of peril. These Berbers are close kin to the European races, blue eyes and light hair being prevalent, and are distinctly an agricultural people, not being, therefore, nomadic except as to pasturing their flocks. The Moslem religion has been forced upon them by the invaders, but they remain monogamists. Honest, religious, industrious, war-like, and frugal, France has learned to conciliate them in every way. She blundered grievously in her conquest of Algeria from 1830 on, but is making no such mistakes in Tunisia and Morocco. These Berbers are divided into three stocks, the Kybales, of Algeria, the Shulahs, of the uplands and mountains, and the Tuaregs of the south Atlas slopes of the Saharas. There is also, in North Africa, a mixture of Arabs and Berbers, one-half as numerous as the Berber stock itself, but that is another story.

You say that you were astonished to find Oran a city of 120,000 inhabitants, connected by rail with Casablanca on the Atlantic to the westward, and with Tunis to the eastward, and

with a harbor long since outgrown by the commerce of the port but now being enlarged, new harbor works being constructed a short distance from it. You tell me of meeting some of my former friends at a *vin d' honneur* given by the Commanding General at the Officers' Casino, and of seeing a company of the Foreign Legion and troops of Spahis, the native cavalry, with their picturesque turbans and burnouses. The French have cultivated soldiers in North Africa as we have grown corn in America; but, for all that, France with her army of 800,000 soldiers with the colors today, is not really militaristic, nor imperialistic, but only hoping to keep her place as a first-class power in a world shattered by the clash of rival forces. France has the spirit and the courage, but lacks guarantees for her security and, above all, lacks financial stability. I am no financier, but her financial position today resembles a great lighthouse of civilization whose foundations are being pounded by the heavy seas. Can she stand up against it?

Our national debt is less than ten per cent and Great Britain's less than fifty per cent of the respective pre-war national wealth, while that of France is fully seventy-five per cent. The national debt of Great Britain is four times and that of France five times our own. Due to the repatriation of Alsace-Lorraine; due to the millions of dollars poured into France by British and American troops during the war; and, due to the wonderful thrift of the French people, her national wealth is now estimated at fifty-seven billion dollars. If we compute in gold francs at .193 her financial position is as follows:

| | |
|---|---|
| Internal debt | $44,800,000,000 |
| External debt | 6,800,000,000 |
| Total debt | $51,600,000,000 |
| National wealth | 57,000,000,000 |
| Present worth | $ 5,400,000,000 |

France owes the United States three and one-half billion dollars and owes Great Britain a little over three billion dollars, but her internal debt, in paper francs and at the present rate of exchange, is only forty per cent of the amount given in gold francs, and her present worth is really about twenty-five billion francs. While Great Britain has balanced her budget and reduced her expenses,

and taxed her people heavily to do so, France has seemingly made few economies in administration, and has resorted to loans to supplement her income. For the four years from 1919 to January 1, 1923, she has borrowed one hundred billion francs, which, by a fiction, is charged to "recoverable expenditures," from German reparations. But is it "recoverable?" All that Germany has so far paid France is $380,000,000, equivalent to five billion paper francs, while France has borrowed, at interest, ninety billion francs for the one item of repairing the devastated regions. In other words, Germany has so far only paid *one year's interest on French reparation loans!* France's budget for 1923 well illustrates her desperate financial situation. It calls for over twenty-three billion francs. Her revenues will produce only nineteen billion francs, a deficiency of four billion francs. This makes no provisions for pensions, repairs to devastated regions: viz., expenses chargeable to fictitious "recoverable expenditures." In the year 1922 France has had to borrow twenty-one billion francs over and above her budget and, in 1923, there is no reason to believe it will be much under twenty billion. In other words, the national debt of France, which was forty-one billion *dollars* in 1919, is now nearly fifty-three billion and mounting every day.

By the agreement of May 6, 1921, France should receive $16,336,000,000 reparations from Germany. As previously stated, she has, so far, only received less than two and one-half per cent of this amount. France is not able to balance her budget on account of four factors: (1) The cost of reconstructing her devastated regions, which she is making loans to meet; (2) The development of her colonies, which she would like to make loans to meet; (3) The repayment of her debts to Great Britain and the United States, which she has made no attempt to meet; and (4) The expense of her vast army and modest navy (national defense) which amounts to five billion francs annually. If she could collect fully from Germany (1), (2) and (3) would be settled. But German reparations have been the football of politics in the Allied countries, and not been in the hands of business men. There has been too much hate and too little trust; too much threatening and too much evasion; too much old-fashioned secret diplomacy and too little of the Golden Rule.

You will be made to realize that there is much subtle propa-

ganda in Europe, which puts the United States in a bad light because we very justly and wisely refuse to cancel the Allied debts, but whether we cancel them or not we will be the goat just the same. For instance, if France's external debts, (3) above, were cancelled, (1), (2) and (4) would continue as now, and that would mean we would never be paid anyway. In fact, we are lucky if we do not have to pay the Allies the reparations Germany seems unable to pay for *that is certainly what it amounts to if we either cancel the debts, or the Allies are unable to pay.*

If we look into this debt question, even superficially, we will see how unjust and how futile any question of cancellation is and would be. As it is now, we simply hold the Allies' I.O.U.'s which have not yet been converted into bonded debt, bearing interest, as agreed during the war, and the question of accrued interest has, therefore, not yet been adjusted. Our people have not yet been required to redeem the Liberty bonds that were issued to raise the money to loan to the Allies, *but are being taxed to pay the annual interest. That means we are ourselves now paying the interest on the Allied debts.* They spent these billions of dollars we loaned them, but we also spent twenty-two billions of dollars on our own account for our own expenses in the war. For instance, since the Armistice, we have loaned Great Britain $576,000,000, Italy $629,789,000, Belgium, $176,834,467, and France $1,027,427,800 in addition to the actual war loans. If we forgive even this much to them we shall, to all intents and purposes, be paying the German indemnity. The money the Allies borrowed during the war on I.O.U's and not bearing interest, was spent by them for (1) necessary current military supplies; (2) food bought in the U. S. A. and sold to their several populations; (3) raw materials for manufacture bought in the U. S. A. and sold to private manufacturers for the purposes of sustaining trade; (4) redeeming the loans made in the U. S. A. before we entered the war, from private sources, bearing interest, which thereby transferred the payment of the interest from the Allies to Uncle Samuel, and (5) post-war relief similar to above, reconstruction and trade revival. Besides that, the Allies have profited enormously from purchases from us, on I.O.U's, of war material, construction, and material remaining behind in Europe. We have been Santa Claus! As a well-known British officer said

to me, "We did not need your naval and military forces, but only your money." During the war we spent enormous sums in sustaining the value of Allied exchanges by purchasing their money at a fictitious and fixed value, much above what it was in neutral countries, with which to pay our officers and men in Europe and all other incidental expenses "over there." I figure that I got twenty per cent less pay on that account. On the other hand France and Belgium paid heavily in devastation wrought by having the war fought on their soil, but England is suffering heavily from unemployment and trade losses. So are neutral countries paying, and so is the whole world paying except the Far East.

Great Britain has announced her intention of paying her indebtedness to the United States. What she has so far paid is principal, and would not amount to one per cent of one year's interest on her debt. Our taxpayers are paying part of the interest now on Great Britain's debt to us. You may think that we appear in a bad light in not accepting Great Britain's proposal to cancel indebtedness to herself, amounting to sixteen and one-half billion dollars, if we would cancel the ten and one-half billion dollars of Allied indebtedness to us, but when you put it down on paper it appears in a different light. In the first place she owes us $4,250,000,000 and in the next place, in the sixteen and one-half billion dollars owed to her is included an item of $7,250,000,000 which she claims as war indemnity from Germany, while we have waived all similar claim on Germany. Her proposal, therefore, really figures out like this:

| | |
|---|---|
| Great Britain offers to forgive | $16,500,000,000 |
| Her uncollectible German indemnity is | 7,250,000,000 |
| Allies of Great Britain owe her | 9,250,000,000 |
| We forgive Great Britain what she owes us | 4,250,000,000 |
| Great Britain forgives other Allies | 5,000,000,000 |
| It is proposed we forgive the Allies | 10,500,000,000 |
| We sacrifice more than Great Britain by | 5,500,000,000 |

(In other words it is the same old thing. Our taxpayers would practically pay the German indemnity.)

If anyone abroad tells you we are cold, calculating, money-lending, please tell them Europe is unreasonable. The answer

to the economic crisis in Europe is (1) every country must balance its budget as the first requisite of financial stability; (2) unless something is done to check the economic disaster which threatened Europe following Armageddon, Europe faces a further peril as the Asiatic and Moslem powers have unlimited man power, undeveloped resources, and practically no national debt; (3) the Allies cannot pay their indebtedness to us for many years to come, and we must therefore practically help pay the German indemnities, and should take a hand in the German reparations problem, for it is merely piling up burdens on our own taxpayers.

To rebuild German industries with American capital would be to throttle the growing trade of the Allies, but Germany can only pay if thoroughly taxed. Taxation in any democratic country is an extremely difficult process, because the taxpayers are also the voters. Taxes cannot be collected economically from Germany by military force, and the answer is, therefore, that Germany must be given economic aid, and her republican government must be stabilized, because a change of government means repudiation of reparations. Germany must be bound to a council of nations, and all must face together the growing problem of Asia and Islam, before it becomes a real vital problem. We are all heading straight for disaster, by a policy of greed which makes concerted action impossible. "A trace of oil" may be found nowadays in diplomacy.

The fuel question is more important than appears on the surface. The lack of coal in France has made it difficult for her to exploit her iron deposits, and handicapped her seriously as a world power. Increase of population comes only with increase in wealth through manufactures, trade, and commerce. Resources determine population. France was the richest and most populous country in the world, before modern inventions demanded coal. There is no lack of enterprise in the French people; they have shown marvelous administrative ability in their colonies; and France's economic handicap makes her seem less progressive than her more fortunate neighbors. Civilization owes too much to France to see her drop back now.

### FRENCH CULTURE

The conquest of France by Julius Caesar cost millions of lives and a long, hard struggle, but he really civilized the French. He built great systems of military roads, established an administrative system operated by the natives, and raised large levies of troops to fight for Rome. In 800 A.D., when Charlemagne saved Western Europe and became the Roman Emperor, his sons were not able to agree among themselves, and, by the Treaty of Verdun in 843 A.D., Germany and France, until then united, became distinct kingdoms. With the breaking down of the feudal system, the French spirit of criticism, of inquiry, and of revolt against injustice asserted itself. Under such able ministers as Richelieu, Mazarin, and Colbert, France enjoyed order, good government and unity. But it was the Caesars in the form of Louis XIV and Louis XV that wrecked France and brought on the Revolution. The French Revolution destroyed the exemptions claimed by the nobility and the clergy, established equality before the law, strengthened the rights of property, and made democracy possible in Europe. The wars of Napoleon, and the two wars with Germany, have staggered France and led to her economic rather than spiritual decay. With a small population, gigantic war debt, and the bulk of her coal mines and most important industrial districts completely and deliberately ruined by the Germans, France is entitled to more than the sympathy of her Allies.

In her philosophy, science, oratory, military leadership, drama, painting, sculpture, and architecture, she has adhered to the classic tradition of Rome. As a recent writer says: "That tradition stands for method, careful attention to form and design, a reliance upon reason, a search after comeliness without extravagance . . . and discipline, or at least discipline in all respects save the political." British civilization across the Channel has always lagged behind that of France, because it has not been brought in direct contact with the Continental influences to which France has been subjected. In England, William the Conqueror is somewhat of a tradition. To be sure he built parts of the towers at Windsor Castle, and London Tower, but, in France, at Caen, he and his Queen are buried in separate cathedrals built for this purpose. The tapestries at Bayeu were woven by the hands

of his consort and her ladies-in-waiting, and depict the histories of his conquests and at Dives in the inn from which he sailed for England. The history of France, contemporary which English history, is preserved with great realism in the chateaux and monuments, which seem all but alive with the spirit of her leaders.

In other words, my son, I am trying to tell you that I regard French civilization, culture and achievements, as superior in many respects, to those of the British, from which we have drawn our inspiration, so do not make the mistake that too many of our British cousins make of "overlooking" the French people. France was fighting for civilization against barbarians, while missionaries were lighting the torch in England.

As Americans, we make pilgrimages to the shrines in England which commemorate the great events in British history, which we share from Colonial days. After all, American colonial history is largely only a record of English enterprise on American soil, and merely a phase of European civilization under a changed environment. The differences in the early history of the various colonies in New England, New York, Virginia, and the Carolinas, were due largely to the differences in the social habits and ideals of the different European stocks from which they emigrated. We have inherited the idea that British art, literature, and drama are necessarily the highest type. Our own great contribution to civilization has been in the art of government. .The world has everything to lose by disaster to France, and historically we owe too much to her in attaining our independence, and in embodying her democratic ideas in the American Constitution, to let her go by the board now,—and we never will!

## FRENCH "KULTUR"

I am not trying to tell you any secrets. A secret is what you tell someone else not to tell, because you promised not to tell it yourself. I am merely trying to give you a point of view, and it really may not be the correct one. My idea is that French surface politeness, mixed with American directness, is the best solvent in international relations. Politeness puts the other person on the defensive, and directness keeps him there. Where the British make a mistake is that, while their intentions are always admirable, they seem embarrassed for fear someone will thank them

for it. Personally, I am not *pro* or *anti* any people. I admire the French, I respect and like the British, I understand the Germans, and I am secretly fond of the Turks. It is not differences in morality but differences in "kultur," which dig chasms between peoples. I do not mean culture, for that is only the polish, or trimming. "Kultur" applies more to a combination of ideals, traditions, customs, forms of government, art and literature.

One of the fashions of war propaganda against the Germans was to denounce their "kultur." What was really bad was Prussian junkerism and Prussian self-assertion. The Germans are really a great and admirable people, stupidly tied to the military chariot wheel, which has all but dragged them into ruin. In the war it was the Bavarian and Prussian troops who were the offenders against the laws of war. The Rheinish, Hanoverians, Saxons, and other troops were comparatively docile. The revolt against their leaders, after the Armistice, was also largely Prussian and Bavarian.

I have spoken highly of French art, literature, and civilization, but I cannot say so much for all her "kultur." Medieval France is not as far off as it should be. In spite of intense devotion to France against a common enemy, there is intense jealousy of individual town and departmental rights, as against national interests. France is the most bureaucratic country in the world. At the root of this is the endless surveillance of internal customs. In all the large cities there are from three to eight men on duty day and night to collect octroi and petty taxes on every vehicle, which, excepting a street car, must stop for at least a casual inspection and the purchase of or showing toll tickets. The amount collected hardly warrants the expense of this particular form of bureaucracy, and the loss of time and annoyance certainly do not. All through France too many people are employed in government business and the number might well be reduced, as is now being done, to help balance the budget. France's finances are antiquated; the banking system is especially so. In many communities there are no banks at all, and it takes endless time and formalities to cash a check. There is a shortage of small change all through France, and local coinage is not good outside of a very narrow area, not to mention the loss by exchange in taking it to other localities. After being in France for awhile you get

the idea that life is entirely a local issue. But anyone who makes the mistake of thinking that Paris is France has only to ask a politician why the French people cannot be taxed more heavily and why they are pressing Germany so vigorously.

The fact is, peace is so difficult to make, because the whole world is reaping the harvest of the war propaganda. All the ill deeds of the enemy in the war were grossly magnified, and none of the noble or generous actions were published. The "Terrible Turk" is unrecognizable when you meet him personally, as he turns out to be such an improvement in morals and manners over anyone else in the Near East, that you have to pinch yourself to make sure you are not dreaming. The French people, with their passionate hatred and vengeance against the Germans, are making future Huns of those whose hearts were not in the Hun business during the war. If the world only realized it, the real Hun is the Bolshevik, and the *real* danger is that French pressure may drive good, honest Germans into Bolshevism. As a matter of fact there are proportionately quite as many honest, moral and upstanding Germans in Germany and Turks in Turkey, as there are commendable citizens in any other country in the world; and we ought to be careful not to make it impossible for them to retrieve the position which most of them have been put in through the fault of their rulers. On the contrary, the Allies and the United States should strengthen the hand and encourage the stability of republican institutions in Germany, as the best guaranty of peace and goodwill. We all face the growing menace of the Asiatic peoples, numerically, economically, and potentially. We must eventually face it, shoulder to shoulder, with Germany on our side. Judaism and Bolshevism, with their cult of internationalism, are also of Asiatic origin, and tend to corrupt the loyalty of citizens, thereby endangering the stability of institutions. The class war now going on in the Allied states, the United States, and the ex-enemy countries is sufficiently ominous not to make it worse by driving Germany into Bolshevism.

We are stirring up trouble for ourselves in the United States and in the world by our "kultur" on the "color line," which negro slavery left with us as one of its heritages of evil. France is trying to compromise on the color line and England is on the fence. One-third of France's army are "natives" with no consciousness

of it unnecessarily thrust upon them. Before the war Germany was making a mess of its color problem by injudicious handling, just as France has made unnecessary trouble by the injudicious handling of the same problem on the Rhine. We are right in America as to the evils of race mixture, but the question should absolutely stop there. In all countries in the world the different races may live side by side in Christian spirit, but the rising tide of color must be met as a problem of higher civilization all around for everybody.

The case against Germany economically is that, whether or not she started the war, she was defeated. She has no external debt, except reparations which she must pay as war indemnity. She has no reconstruction, as she has no devastated regions. Her external debt is to her own people, and in paper marks it is inconsiderable as compared with what France is facing financially. As previously stated, France has spent ninety-three billion francs of borrowed capital on her devastated regions, which Germany owes her, as she has only paid France one and one-half billion gold marks. Germany must pay, and to the extent Germany either must pay, or is made to pay, depends the future of Europe as at present constituted.

The case against France is, she has not balanced her budget for current administrative expenses, and were Great Britain and the United States to promise her security from attack by Germany, owing to the instability of her politics, it would only encourage her in dangerous diplomatic adventures, for France is addicted to the vice of secret treaties. Her policy of hatred and vengeance toward Germany, while natural enough, is also a source of danger to Nordic civilization and its predominance in world affairs. We must keep Germany with us or Bolshevism will be the next step, leading no one knows where.

What France asks is reparations from Germany for material damages, and security from future attack. The French feel that their claims are too obvious to need explanation, and their pride and reticence prevent them stating their case properly. France is not militaristic, and she is spending annually very much less for the maintenance of her national defenses than either Great Britain or ourselves. She gets more for her money because she

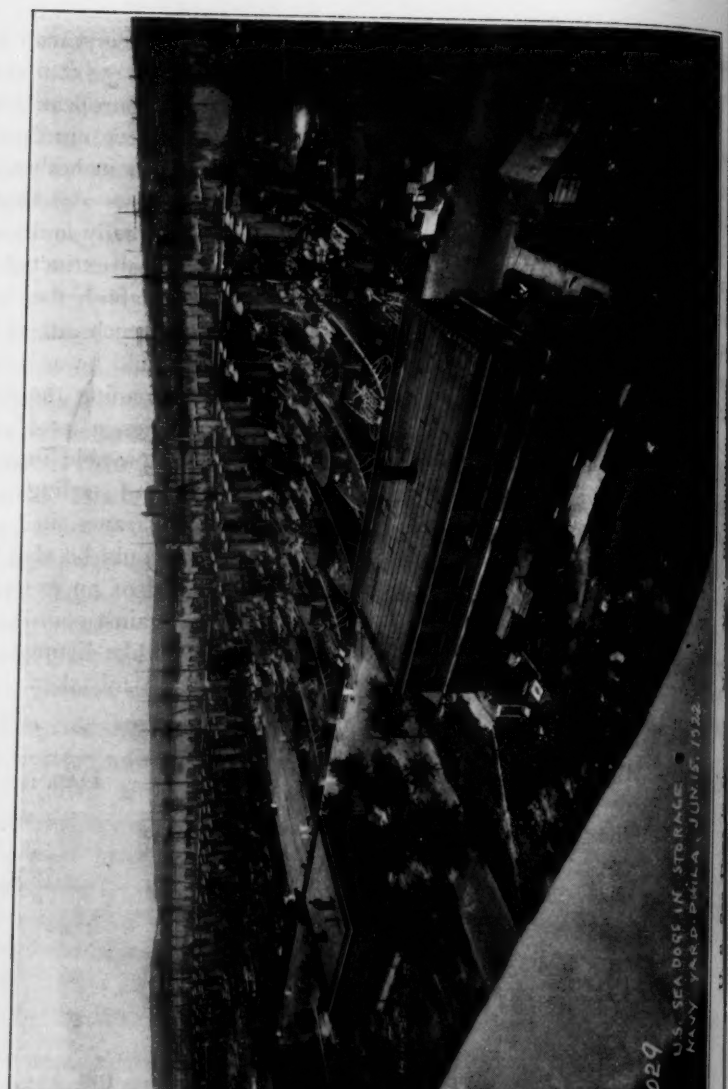
has conscription, which she has recently reduced from three years to eighteen months.

The case against us is, we have stayed out of the European muddle very properly up to the present time, but now we must go in to protect ourselves, and to avoid economic chaos in both France and Germany.

My idea of remedying the economic situation in Germany and providing her with a new currency to replace the almost extinct mark, is for Great Britain and the United States to establish the value of the franc at sixty to the pound, and make French currency the medium of exchange in Germany. This could be accomplished by Great Britain and the United States loaning the German government, municipalities and large companies, a total of some billions of francs; and making reparations payable in francs. This would improve both the value of the pound sterling and of the franc. Reparations should be payable in francs, independent of the relative value of the franc. This would be almost like making reparations an internal debt instead of an external one. Strict measures would have to be taken against counterfeiting French paper currency. If this scheme is like lifting yourself by your boot straps, then I am very much mistaken. What do you think of it?

Your affectionate

DAD.


3029
U.S. SEA DOGS IN STORAGE
NAVY YARD PHILA. JUN 15 1932

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# DECOMMISSIONING DESTROYERS AT PHILADELPHIA

By Lieutenant P. V. H. Weems, U. S. Navy

For sufficient reasons the Navy Department sent out an order on February 18, 1922, to proceed with the decommissioning of 157 destroyers, leaving a total of 123 boats in full commission. Of the destroyers to be laid up, 90 were to remain at Philadelphia. On March 20 the first boats left Charleston preparatory to laying up at Philadelphia. As a preliminary step as many torpedoes and stores as possible were transferred to the active boats at Charleston. As the huge task of decommissioning so many boats had never before been undertaken, it was a wild guess to say definitely when the boats would finally haul down the flag.

An estimate was made by the yard stating the number of boats that could be accommodated at one time without confusion. The program called for the boats by administrative units. The first ones to arrive were boats of Squadron One under the command of Captain Yancey Williams, which reached the yard on 24 March. Once at the yard, the race of decommissioning began. "Race" is the correct word, since the instructions called for the date of decommissioning all the boats as June 15.

The first day at the dock was spent in sending out all ammunition, boats, anchor chains, and other heavy items. Then at the first opportunity the boats were towed to the back channel, or reserve basin, to complete the work. Each boat required about a hundred gallons of paint, about a ton of paraffin wax to seal up the sea valves, fifty pounds of rust preventative to lay up the torpedo tubes and guns, and finally several barrels of unslaked lime and several barrels of rust preventative with which to lay up the machinery of the engineering department. Multiply these items by 90 and some idea can be had of the enormous amount of

stores which had to be supplied by the yard Supply Departme Unavoidable complications arose. As the quantity of approv rust preventatives on hand was insufficient, a substance rese bling vaseline was issued instead. After some of the boats h laid up the main engines with this substance it was found b test to be unsuited for the purpose for which used, and machine laid up with it had to be cleaned to the bare metal and coat with approved rust preventatives. This entailed an enormo amount of extra work.

On several boats the main injection and discharge valves wou not close watertight, and the paraffin could not be placed. Thi difficulty was overcome in various ways. On one ship, two three ton chain falls led from the boat alongside to heavy wire pendan passed underneath the ship to be heeled, aided by a similar fa led from the searchlight tower to the boat on the other side, heelel the main starboard valves clear of the water. A man was the sent inside and adjusted the gate valve which had become cock billed in the groove, and in a few minutes the valve was closed

Practically all linoleum in all the boats was taken up, the deck cleaned and scaled and then red-leaded. Some of the decking under the linoleum was in fair condition, and a department order came out to the effect that linoleum was not to be taken up where the deck underneath was not suffering. However, this order came too late to save much of the linoleum as most of it had already been taken up.

Under the metal furniture bad rust and scale were found. Another place which seemed to have been overlooked in many of the boats was the bulkheads near the water line in the boiler and engine rooms. It was found that serious scale had developed under the heavy coats of paint.

The general plan in laying up a boat was to have sub-inspectors pass on each compartment and on each piece of machinery before the final inspection board came around. In this way many of the minor defects were corrected before the final board inspected the ship. A compartment would not be passed until it was placed in almost perfect condition, unslaked lime placed in it and the compartment sealed up water-tight if possible. All openings through which water or moisture could enter were sealed, metal covers put over the stacks, every part of the ship got its proper

preservative for machinery and bare metal, and suitable paint for the other parts of the ship.

About two weeks before the ship was due to go out of commission the crew was quartered in barracks in the yard and messed at the receiving ship, in this way gradually removing everything in the line of food and stores from the ship. One of the gruesome results of moving all food from the ship was the rat famine. The rats worked their way about the ship behind the metal sheathing. Of course, there was no access through the water-tight bulkheads, yet it is difficult to explain how rats and mice made their way from one compartment to another. When the lack of food began to have its effect on the rats they turned to on leather book-bindings, paper bindings for the glue in them, then on such items as linen collars for the starch in them, on tennis racquet strings, and almost anything else from tin cans to shoes. Finally when the compartments were sealed for good Mr. Rat was caught in a death trap. An inspector opening a compartment a few days after a boat was decommissioned saw a rat in such distress from hunger that it made scarcely any effort to get out of the way.

Unexpected details would come up the last few days, which could only be overcome by extra work, if the boats were to get out on the date set. In these cases the men on many of the boats worked through meal hours and into the night several days before the flag came down. The ship spirit among the men was excellent and only a person who personally saw the amount and kind of work can appreciate what was done. There were many hardships and few comforts, yet nearly every person who helped to put a boat out of commission will say that valuable experience was gained, and that work on another ship will come easier from the knowledge gained in putting these boats out of commission.

At first almost everyone thought it was a pity to lay up these fine boats, and probably thought they would be a total loss. After seeing the way they are laid up, one is ready to believe they will be ready for a frolic or a fight for several years to come in case only reasonable attention is given them. A captain in the Construction Corps estimates that they will be serviceable for fifteen or twenty years to come if reasonable attention is given them. His plan for upkeep of the boats is to have an officer in charge of four

officer inspectors who will each inspect a boat a day, sighting every compartment in every ship once each month. Blanks will be filled in on each compartment, and the officer in charge will make rounds at random to check the inspection made. Any defects noted are to be corrected by a force of one hundred fifty yard workmen who will work under the supervision of the inspectors.

The boats are sandwiched in between the slips two lengths deep with bows overlapping, and with the entire space between the slips filled with boats. The result is that the group of boats are so closely packed that there is practically no motion even in hard blows. Also the fresh water in which they rest and the ample storehouses in the Philadelphia yard make this an ideal place to keep the boats which cannot be maintained in full commission. At this writing, July 17, 1922, more than 80 of the 90 boats are out of commission.

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# THE NAVAL ACADEMY OF TODAY AND ITS MISSION

By Lieutenant Commander Mahlon S. Tisdale, U. S. Navy

## The Mission

*"To mould the material received into educated gentlemen, thoroughly indoctrinated with honor, uprightness and truth, with practical rather than academic minds, with thorough loyalty to country, with a ground work of educational fundamentals upon which experience afloat may build the finished naval officer, capable of upholding, whenever and wherever may be necessary, the honor of the United States; and withal giving due consideration that healthy minds in healthy bodies are necessities for the fulfillment of the individual missions of the graduates; and that fullest efficiency under this mission can only be attained if, through humane yet firm and just discipline, the graduates carry into the Service respect and admiration for this Academy."*

The Naval Academy has passed through many physical transformations since its inception in 1845, and it requires some daring, in these days of progress, to attempt to visualize the future. But even with the reduction of armaments, it is reasonable to assume that the Naval Academy of today will be the Naval Academy of the future—for several decades at least.

In the evolution from which resulted the present Naval Academy, the greatest single increase in capacity came during the World War when the plant was increased to its present size. By duplicating the wings of Bancroft Hall, the quartering capacity was about doubled. The Hall can house, in its four wings, two thousand forty midshipmen, with two in each room. Dur-

ing the war the appointments were increased to five for e Congressman, with twenty for the President and one hund for the Secretary of the Navy. As a natural result last y saw a regiment of 2,431, the largest in the history of the Ac emy. There are 2,396 at present.

Such regiments are too large. They necessitate berthing th midshipmen each in some of the old "Youngster" rooms, and many as four in some of the "first class suites." Manife such crowding, though necessary in but a small percent of cases, is unsatisfactory. Last year a bill was int duced in Congress to reduce the number of appointments two for each member of Congress, and proportional reducti among the other appointing powers.[1] This bill has not beco law. A happier choice in reducing would be four. There a several good reasons for not reducing below that number. Su a drop would furnish a regiment of about two thousand whi would permit the existing plant to be run at maximum effici capacity. The attrition in commissioned personnel in these time of treaty navies is high. This year it may run as high as tw hundred fifty. If the Service is ever to fill existing vacancie and keep step with attrition as well, we will need about fou hundred graduates each year for some years to come. Furthe by graduating more than are needed for the Service, the navy c select only the more apt for commissions. Perhaps the Gover ment cannot afford to run the Academy at a maximum, solely permit choosing the graduates, but there is another side.

The graduates who are returned to civil life will be the nucle of the finest sort of a reserve. The opportunity for an educa tion will be granted to many young men who might be denied education otherwise. Four years here cannot fail to instill muc Americanism, as well as good character, into the graduates. The will be returned to civil life better citizens in every way. Th

[1] A clause in the Annual Appropriation Bill for the Navy making appr priations for the fiscal year ending 30 June, 1924, provides "That no pa of this appropriation shall be available for the pay of any midshipm whose admission, subsequent to the class entering the Naval Acade next after the approval of this Act would result in exceeding at any tim an allowance of three midshipmen for each Senator, Representative a Delegate in Congress . . .," and goes on to say that existing laws regar ing appointments are not repealed. Whether this clause will be carri in subsequent Appropriation Bills is a question.

overhead expense increases only moderately per capita, with a regiment of two thousand, as opposed to one of fifteen hundred. Naturally the pay and the cost of the rations depend directly upon the number of midshipmen. The money could be spent much more unwisely.

These reasons are sound, and contain most of the arguments customarily advanced. Little opposition to them has developed, and there has been no refutation. The Government has many farms for moulding and developing live stock. Surely a school for the moulding of humans into good citizens is a wise investment.

As has obtained for years, the midshipmen are drawn from all walks of life. Yet even the poorest judge of character cannot fail to see that the average *candidate* compares most unfavorably with the average *first-class man*.

Recent years have witnessed an increasing interest in what one might call practical or applied psychology. The war focused thought on this feature of leadership. No officer will deny that the ability to lead men is an essential characteristic of a good officer. Yet for years each coming generation has had little guidance in this regard. For our particular form of career, we have had instilled all sorts of knowledge about all sorts of machines, except the human machine. And without the human machine, of what avail are all of the others?

The press of war saw all kinds of men commissioned. Some with previous experience as executives, but more without it, became officers. These men, fired by the enthusiasm of war, patriotism, and personal ambition, sought written guidance—only to find that in the Service experience is, in truth, not only the *best* teacher, but virtually the *only* teacher. Training had to be conducted largely by word of mouth and by example. There were plenty of excellent works on war and similar subjects, but few on the fundamentals of leadership. All of this brought the realization that the graduates of the Academy were being sent into the Service, with possibly the essentials of command indoctrinated into them, but with little tangible advice or instruction in those practical methods, which the experience of generations had shown to be best suited to the situations a junior officer encounters afloat.

It is perhaps true that leaders are born and not made. But there are various degrees of skill among leaders. The Napoleons may perhaps have the God-given gift, but we cannot all be Napoleons. Nor can we wait for the presentation of the gift. Few there are who have it. Yet the rest of us must struggle along as best we can. We are in a career which is primarily one of leadership. The Service standards are of the highest. To meet this situation, a course in leadership has been introduced into the Naval Academy curriculum. And for the same reason, the mission of the academy has been reduced to writing, in the belief that a visible mission will crystallize thought on those features of the academic life which have the greatest bearing in fitting men to command.

Recent developments in warfare such as aviation, gas, radio, and communications have demanded, or are demanding, a place in the curriculum. But it is difficult to find the necessary time. The pace is already fast. The departments have been re-working their respective courses, cutting and pruning where possible, to make room for the newer subjects. The mission is to teach fundamentals, which grants plenty of authority for cutting—but there is much that cannot be cut. The new developments have caused no reduction in the importance of the old subjects. Most of them are in the line of additional information required of the naval officer, rather than a replacing of the old knowledge. Radio, for example, is of a continually increasing importance, but it does not relieve the officer of today from having a knowledge of signals.

To meet this difficulty, there appear to be only two courses open. Either we must come to the five-year course, or the entrance requirements must be so increased that a candidate will have had one year of college work prior to admission. The latter plan seems impracticable for several reasons. It would increase the age of admission, even though the actual requirements might remain unchanged. It would prevent many worthy young men from qualifying for the academy. It would probably not meet with the approval of the Congressmen, who are privileged to appoint the candidates. The present entrance requirements have, in the press from time to time, already been classed as difficult. As a matter of fact, they are not difficult, as

the results would indicate. The entrance requirements for classes entering in 1923 and subsequently, have been increased, but only up to college entrance requirements.

Now coming to the mission, it contains nothing new, but does express in black and white what the Academy is working for. This differs little from what has been taught for years, but it permits all to see at a glance what a high standard the service expects of its officers; and that, while scholarly attributes are essential, unimpeachable character is vital.

### TO MOULD THE MATERIAL RECEIVED INTO EDUCATED GENTLEMEN, THOROUGHLY INDOCTRINATED WITH HONOR, UPRIGHTNESS AND TRUTH

Character permeates the entire mission. I cannot better express the necessity than to quote from a letter written last year by the present Superintendent to the Secretary of the Navy:

> High standards of character are vital in a military organization. Men in other walks of life may trifle with the truth in everyday affairs and suffer little as a consequence. We cannot be so tolerant. The fundamental of an officer's value to the Service is his trustworthiness.

No one in the Service can amount to much without having pride in his calling, and pride in his own particular assignment. This is one reason why the mission sets such a high standard. Men are prone to be what their superiors think they are. The mission directs the thoughts of the young gentlemen of the regiment, as well as those of the officers, toward a target. The target involves honor, uprightness, integrity, and many other essentials. As the midshipmen respond to the challenge and indulge in introspection, each will see some of the dross not visible to others, and a thoughtful consideration of self, compared to the ideal which the Academy demands, gives a determination to meet the test. When it has been met, there comes the pride of success. Custom and tradition have always held ours to be an honorable calling. Ever since there have been navies, officers and men have been proud to wear the blue. At high standard set—and met—makes for satisfaction in one's work.

Pride is allied with self respect, without which no officer or man can succeed. A midshipman's word is not questioned. He is taught that he is expected to tell the truth; that less than the

truth shows him unfit; and, so far as the authorities are concerned, that what he says *is* the truth. This gradually cements into his character not only the habit of truth, but also pride that he is trusted, and his self respect is strengthened accordingly.

When the occasional misfit does enter, sooner or later he shows his true colors. The standard punishment for any offense of evasion of the truth, actual untruth, or other offense involving the honor of the individual or of the Service, is dismissal. The honor element of naval character must be unimpeachable.

It goes without saying that the academic course must be maintained at a high standard. There are at least two reasons for this. First, because academic education trains the mind to think, to reason logically, and to estimate correctly the countless situations which a naval officer is called upon to handle. Second—and this reason is not so widely understood—because a strenuous academic course instills a fundamental of naval character into the midshipman. This is the habit of working, and of working "on one's own." Our section room methods do not meet with the universal approval of the scholars of the country. Some of them prefer the lecture method. But there is no denying that four years spent in digging things out for one's self breeds independence, and teaches the young gentlemen of the regiment to work, and to work hard.

Marks are a necessary evil. One might almost say that they are the curse of the course. They must exist not only to stimulate effort, but to permit some sort of reasonably just arrangement of the graduates on a seniority list. Any other scheme would make the arrangement haphazard.

A primary requisite in the character of the successful naval officer is obedience. One who cannot command himself cannot command others. Hence, for four years the midshipmen are taught self-discipline. Many of the academy regulations seem unnecessary to the thoughtless. But all have a purpose. The American character is essentially one of action. This action in the younger generation is frequently without regard for the rights of others; and is all too often without regard for the consequence. In short, obedience is not one of the prominent characteristics of the average young man. No officer can be successful who is disobedient. This involves loyalty, subordina-

tion, and several of the other recognized attributes of one who would succeed. Of course the primary function of most rules is for the orderly carrying out of a large and intricate organization, but regardless of the reason for the regulations, it is a fact that they do teach the novice that there are certain things that he may not do. They form the entering wedge, in the training of men for a life of self-sacrifice in duty's name. The orderly arrangement of the day teaches promptness, loyalty, attention to details, subordination to superiors, and obedience in general. An important part of the training in obedience is military drill—the so-called "drills of precision." They form the habit of obeying an order exactly, at a definite time, and without question. Infantry drill, so far as a necessity for the knowledge of the subject is concerned, is not as important as is gun drill. But as a moulder of character, its value is incomparably greater.

Another important point now receiving much attention is how best to stimulate the efforts of the midshipmen. Every regiment has had a minority who shout vociferously that all they want is a "little old two-five." While this claim is most often made by those incapable of garnering more, such statements to a certain extent are harmful to the rest. Most of us feel a wish that we could do it over again, and the feeling always carries the mental qualification that "I could pull my class standing up, now that I realize what standing means." In other words each of us has admitted, at least to himself, that his present standing does not represent his best effort. The word "greaser" still carries the old stigma, and the midshipmen of today are no different from those of yesterday. To urge the regiment to greater effort, the attention of all hands was called to the value of class standing, and its importance in their career. Forming the habit of doing one's best is much more far-reaching than simple class standing; for learning to do one's best, on all occasions, is a fundamental of naval character.

In a further attempt to stimulate effort along those lines an order was published, explaining the value of service reputation, and encouraging the midshipmen to work now toward that goal; stating that the Superintendent will place a letter of commendation on the records of "those six midshipmen who, at the end of the academic year, will have contributed most by their officer-

like qualities and positive characters to the development of military spirit and loyalty within the regiment."

It has been said that too many first-class men leave the Academy without having heard the sound of their own voice raised in command. The midshipmen officers received plenty of training, while the "clean sleevers" had to go on board ship into a division assignment, with no experience in command beyond handling a section during a periodic detail. To equalize the opportunities of all first-class men—for after all, our major simple mission is to command—the present system of changing the assignments each month was placed in effect. All first-class men now wear a single narrow stripe around the sleeve; and in addition, the midshipmen officers wear the appropriate number of short stripes just above the class stripe. For the last three months of the year, selections are made from the entire first class, having in mind the record of each midshipman in his previous detail. The best are selected, and they wear the appropriate insignia of rank, the customary five stripes, four stripes, etc., all the way around the sleeve, in lieu of the class stripe. Each midshipman, under this system, graduates with the experience of having commanded a squad at least. This breeds confidence, in proportion to the responsibility which the size of the command has carried. Confidence is another fundamental characteristic of the efficient officer.

As another important step toward the moulding of character, an intensive educational campaign is being conducted to counteract the ease with which lenders of money, or credit, prey upon the midshipmen. The midshipmen have been told repeatedly, both orally and in writing, of the menace carried by the debt habit. An effort has also been made to interest their parents in this feature. One large firm has voluntarily agreed to solicit no life insurance from midshipmen. A Baltimore paper has published an editorial "Rally around the Admiral," commenting favorably upon the efforts being made to stamp out the debt habit. If the mdshipmen can be made to see the foolishness of spending considerable sums on "grad" terms, they will not only have avoided forming a bad habit, but will join their first ships more cheerfully than where, as formerly in some cases, a year's pay is obligated to a human vulture.

### WITH PRACTICAL RATHER THAN ACADEMIC MINDS

The midshipmen are taught to seek responsibility, and are given the necessary knowledge, that they may not fail to measure up. The course is essentially practical. An officer handling huge ships, big guns, intricate machinery, and high speeds, must have common sense, a quick acting mind, and the requisite knowledge.

### WITH THOROUGH LOYALTY TO COUNTRY

Naval Tradition has an important function in developing loyalty to the Service, as well as to the Country. Young officers, though they may have unknowingly absorbed much of it, may scoff at tradition as one of the hobbies of the senile. Thinking men will admit, however, that tradition in any vocation makes for greater efficiency. The young gentlemen are at a most impressionable age, and despite the *penchant* that youth has for jeering at those who have gone before, it is certain that some inspiration must come from a knowledge of the successes of their predecessors in the Navy. What young man—mayhap he is studying the history of the World War—can look upon Gribble's "The Return of the Mayflower," depicting the entrance into Queenstown of our first destroyers in 1917, without a thrill of pride, and without experiencing a determination to be ready himself when duty calls?

Who of us can look upon the tablet in Memorial Hall, dedicated to those who lost their lives after a voluntary 1,500 mile voyage in an open boat, to bring succor to their comrades of the shipwrecked *Saginaw,* without at least wondering if we can meet the supreme test so courageously? Does not the tablet to Lieutenant Stanton F. Kalk, who surrendered his place on a life raft, after the torpedoing of the *Jacob Jones* in 1917, and in consequence lost his life that an enlisted man, a non-swimmer, might live, conjure up visions of a young officer meeting his Maker manfully, in accordance with "the best traditions of the Service"? And does not the gazer have inculcated just another bit of naval character, to help him in his own hour of trial, when duty will call, and when he must not be found wanting? And so on through the many books, portraits, monuments, and tablets, which the Naval Academy preserves to assist in the character moulding of its youth. A brief history of the more important memorials has been printed, and a copy has been furnished each midshipman.

### WITH A GROUNDWORK OF EDUCATIONAL FUNDAMENTALS, UPON WHICH EXPERIENCE AFLOAT MAY BUILD THE FINISHED NAVAL OFFICER

The academy does not attempt to turn out finished naval officers. Without adequate experience afloat, as officers, it would be a hopeless task. This is an important point, and one often discussed in the Service. The Naval Academy turns the graduate over to the Service, for seasoning and further training in the school of experience.

### THAT HEALTHY MINDS IN HEALTHY BODIES ARE NECESSITIES

It is recognized that human nature contains certain unfavorable elements as well as favorable ones, and that these must be combatted by physical, as well as educational, means. The body must be healthy, if the mind is to be so. The American youth is frequently equipped with a super-abundance of energy, which must be diverted into proper channels, to prevent it from flowing into mischievous—or worse—ones.

Athletics thus serve a number of purposes. Through personal association, they satisfy the gregarious instinct which demands company—that is, they prevent loneliness. Through the successes of our teams, they increase the midshipmen's pride in the Academy. They increase company, battalion, class, and Academy spirit. They fit the graduates to coach ship's athletic teams. And what is more important, the general athletic system, completely standardized, does much to keep the regiment healthy, and builds up their physiques to keep pace with their constantly developing minds. It develops also certain qualities of leadership, such as good sportsmanship, instant decision, concentration, willingness to work hard, and self denial.

### IF—THE GRADUATES CARRY INTO THE SERVICE RESPECT AND ADMIRATION FOR THIS ACADEMY

The last part of the mission opens up a wide field of opportunities for good. The nature of the life is such that there will always be a feeling of relief when the coveted diploma has at last been won. Whatever is worth having, is worth working for; but there are so many slips between the cup and the lip, that success

naturally means a release from an enormous strain—hence the spirit of "Thank God we're out of the wilderness." The feeling is perfectly natural, and there is no desire to change it. The aim is rather to have that "out of the wilderness" *paean* mean nothing more than the lifting of the safety valve, before the graduates settle down to a life of steady steaming, with heart and mind gratefully reminiscent of Academy days.

The policy is to give the midshipmen all the authority they are capable of handling. But this authority goes hand in hand with responsibility. They are held strictly accountable for their actions. The policy is to lead, rather than to drive. They are encouraged along a road, rough going at its best, and those who fail to measure up are summarily dealt with. A year's trial of this plan is encouraging but it will require one, or perhaps two, more years to establish definitely that the system is an improvement. The system is on trial, but gives every indication of success. The regiment realizes that the effort to relieve the grayness of Academy life means that, more than ever, they must measure up or take the consequences. There has been no let-down in discipline—quite the contrary.

Graduates who love the Academy will love the Service, and will make the necessary sacrifices, when the time comes, with a smile. They will come back to the Academy as Officer-Instructors, willingly, cheerfully, even eagerly. They will teach others to love the Academy, and in not so long a time there may be a waiting list for academy duty. Officers will be fighting for the detail. Then, as now, the midshipmen will be happy, interested, thoughtful, but with a greater sympathy for the Academy and the Service. This may come with the millenium; but at least we have a *target*.

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# THE NAVY'S PAPER WORK

REAR ADMIRAL CASPAR F. GOODRICH, U. S. NAVY

Twenty-five years ago, just before he became Secretary of the Navy, I told Governor Long that the volume and burden of official correspondence had grown to such dimensions as to be almost intolerable. I recall one expression of mine which seemed to impress him by its earnestness. "You can have efficient men-of-war under you," I said, "or perambulating offices, but you can not have both in the same ship." If this was true in those days, what, I venture to ask, is service opinion on the subject now?

Even then, the *Navy Regulations* had grown from the modest pamphlet of 62 small pages in 1832 to a book of 440 octavo pages in the 1896 edition. The latest issue within my reach contains 417 pages of regulations plus 569 of instructions (a distinction without a difference) not including appendices. What may be the bulk of the current volume I do not know. It must be a staggering tribute to the god of centralization. His ever-present cult is intimately related to our subject. Due to it, there follows, as naturally as water runs down hill, a steady and vast increase in official correspondence that absorbs time on the part of the captain afloat which were better employed in preparing his command for battle or of the commandant of a naval station which should be devoted to the larger duties of his post rather than to signing his name to perfunctory endorsements hundreds of times daily.

Furthermore, I told Governor Long that, in order to stand well in the estimation of the Navy Department, a commanding officer had only to keep his correspondence voluminous and up to date, scrupulously exact and according to Hoyle in each particular, every "t" crossed and every "i" dotted. Whether his vessel was dirty and slack, or unable to maintain her trial speed or to hit the target, mattered little in comparison. I added that I, per-

sonally, stood low in the scale because I made it a rule never to write to the Department unless absolutely necessary and never to reply to its communications except when positively directed to do so, although I was sure that my own command was second to none of her class in condition and efficiency, while the crew were happy and contented to an unusual degree. I wonder if the same unfortunate standard still prevails, modified, as it must be, by the new and admirable requirements as to gunnery and steaming competitions. I trust that some one, better informed than I, can reassure me on this point.

A glance at the twenty-odd pages in the *Instructions,* listing the reports and returns, raises the question whether many, if not most, of them could not be eliminated to advantage. Would it not be well to exact specific reports when things go wrong or when a ship's efficiency falls off in any respect or when some especial occurrence should be brought to the attention of the Department or a bureau and to suppress periodical reports which merely state that all is right? Why not take the latter for granted?

Often have I thought that, given the power, a Secretary of the Navy might do a wise and patriotic thing were he to call in his chiefs and notify them that at the end of the current fiscal year he would discharge half the clerks under the Department in Washington and elsewhere; that after the close of the ensuing six months, he would discharge half the remainder, thus giving ample notice in order that these bureau chiefs could, at their leisure, adjust their business accordingly. While this is a mere figure of speech, not to be taken *au pied de la lettre,* is not the fundamental idea sound? Does any person think that the Navy would suffer seriously through the introduction of such a measure, even in part?

It is rather a distressing reflection that this constant growth of paper work is due to ourselves in general and, in particular, to such of us as, occupying important positions at the Navy Department, fail to resist appeals by the clerical force for new reports and returns which, for the most part, serve only to bring grist to that force's mill; to increase the use of stationery; and still further to impair the initiative of the men afloat or otherwise away from Washington.

A certain amount of centralization is undoubtedly necessary but every effort to increase it beyond the irreducible minimum should be resisted to the last extremity and never yielded to until proved, beyond peradventure, to be essential. Can any sane man imagine a like code of minutiæ being laid down by the main offices of our great industrial organizations such as the Standard Oil or the Pennsylvania Railroad? The practice in civil life is to place at the head of each division a competent man, held to strict accountability for results and clothed with commensurate authority. In this way, success is assured and dividends earned. Moreover, decentralization stimulates subordinates to think for themselves and to act promptly, in accordance with the known policy of their superiors, when occasion arises with no time available for reference to headquarters. Such a self-reliant practice must be of inestimable value to naval officers in times of national complications or any other emergency. Our history is replete with such instances. The Navy is one of the largest business corporations in the land. Its stockholders are the American people. It rests upon us naval officers who administer its affairs to make sure that the people get one dollar's worth of value for every dollar expended; and to see that all waste be cut out. Besides countless other things which are not within the scope of this article, are there not extravagance in stationery here, an unnecessary clerk there, too many typewriters and red tape everywhere, costing the nation, in the aggregate, quite a notable sum of money coming from the already overburdened taxpayer? The moral effect on the service is even more regrettable in causing even trivial matters to be referred to headquarters which could at least as well, if not indeed better, be dealt with by the man on the spot.

"Many a mickle makes a muckle," say the canny Scot. These small savings would not only total something worth while but the example of these *petites economies* would be followed in larger things. Is it not our duty, especially in these days of lessening appropriations, to stop all avoidable waste and devote the savings to the fleet? If so, we ought to act in a negative sense by carefully scrutinizing all suggestions for increasing our paper work and, positively, by cutting what we now have to the bone.

It is astonishing to what extent we hamper ourselves by ex-

cessive amounts and careless methods of correspondence. During my last service on the active list, I was commandant of the New York Navy Yard. Supported by Mr. Newberry as Assistant Secretary and, later, as Secretary of the Navy, I inaugurated many short cuts in official correspondence which reduced the time consumed in handling any subject to a remarkable degree; greatly simplified every step; and eliminated much paper work. In my own office, when a vacancy occurred in the clerical staff, I was able to report that it need not be filled. My heads of departments were of the opinion that, on any job, the time required to get it started fell from an average of ten days to forty-eight hours. For this reason I speak as one not without experience. What I advocate can be done because it has been done. I am, by the way, under the impression that this departure from former practice was subsequently disapproved and forbidden.

The Department is and must be guided by the counsels of its chosen advisers. They, in turn, reflect service opinion. If naval officers like to be governed and directed in every trivial matter by word from Washington; to be deprived of individual initiative in carrying out loyally the expressed policy of the Department or any one of its bureaus; they can do no better than to encourage and foster this tendency toward complete centralization with its flood of reports, returns, etc., but if they aspire to discharge, with credit to themselves and honor to the Department, that trust embodied in their commissions in the President's own words, they should lose no opportunity to combat the rule of the typewriter, that potent instrument of centralization. In so doing, they would free themselves from unnecessary hobbles; further the just aims of the Navy; and aid our chiefs of bureaus in ridding themselves of a mass of details that make it difficult for them to study the really great problems which they alone are competent and authorized to solve. I can but feel that these important officers, charged with the weightiest responsibilities, would welcome the help of an active interest in this subject by all and sundry with the support of a strong service public opinion. It is to call the attention of my brother officers to this seemingly unimportant question that these words have been written. If I am wrong in my beliefs, some one who knows might take great pleasure in correcting me and thank me for the opportunity I offer of setting me right.

[COPYRIGHTED]

U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

# NAVIGATION VERSUS THE JUNIOR NAVAL OFFICER

By Commander John Downes, U. S. N., Head of Department of Navigation, U. S. Naval Academy

In the early summer of last year (1922) some seven hundred officers of the grades of Lieutenant, Lieutenant (j.g.), and Ensign, became eligible for promotion to the next higher grade and were given the required professional examination. The examinations were held practically simultaneously at various naval stations, on board ship, and at Washington, and were conducted by Supervisory Boards at all places except the last mentioned, and at the Mare Island Yard. This resulted in a flood of papers being received by the Naval Examining Board, quite beyond its facilities for handling them and as a result certain officers of the Naval Academy in the Departments of Navigation, Seamanship, Ordnance and Gunnery, Electrical Engineering, and Marine Engineering, were ordered to temporary additional duty to assist the Naval Examining Board in marking papers on subjects pertaining to their respective departments. In the Department of Navigation this work took nearly two months, two officers working six to seven hours a day, five and a half days a week. In all, five hundred thirty-seven papers were handled. Of these over half were those of Naval Academy graduates, the remainder being papers of former temporary officers.

It was natural to assume that the Naval Academy graduate would know more about refined navigation than the former temporary officer and such was found to be the case. The former's work was much more accurate and the plotting was much neater than that of the latter. So much of the work of both, however, was open to criticism that it is believed that the pointing out of the common errors of both will be of benefit to the younger line

officers in future examinations, and in their navigational work at sea.

Before proceeding with the criticisms, however, it is desired to point out that the Department of Navigation considers as not a minor part of its Mission that it exists for the purpose of benefiting the Service at large in the science of Navigation. To this end it keeps in constant touch with the Naval Observatory, the Hydrographic Office, Coast Guard Officers, and the Coast and Geodetic Survey, either through direct correspondence, personal visits, or their publications. It communicates with inventors of new navigational appliances or new methods of navigation and attempts to keep up to date in every respect, passing the information on to the midshipmen whenever the information is considered reliable and to be of benefit to them. The Department laboratory is enlarged from time to time by the receipts of new instruments or by exhibits of instruments used in days long gone. It is still far from complete, however.

A careful resumé of all the papers disclosed the fact that the majority of all the officers examined were lacking in a good knowledge of the following:

1. Description of, and activities of, the Coast and Geodetic Survey, The International Ice Patrol, and the Board of Steamboat Inspectors.
2. The magnetic and the gyro compasses, causes of error, and correction of same. Advantages of the latter.
3. Duties of the Navigator pertaining to target practice and battle, use of mooring board and Battenberg Course Indicator for battle approach.
4. An understanding of Zone Time and keeping Zone Time at sea.
5. Certain parts of the contents of nautical publications.
6. Lack of knowledge of harbor surveying.
7. Inaccuracies in "day's work."

Each of the above will be taken up in turn and the common errors made will be given. It should be borne in mind that this article is in no way intended as a criticism of the officers who were examined, nor as an expression of opinion as to their fitness as a group, but is a critique of the general knowledge of the science of Navigation among younger officers with suggestions

for improvement. The idea is to "point the way" for those to be examined in the future.

Coming now to the above listed errors we will take them up individually in their numerical order.

1. *Description of and activities of the Coast and Geodetic Survey, the International Ice Patrol and the Board of Steamboat Inspectors.*

Of the various offices that are more or less co-related with the Navy, the candidate seems to be deficient in his knowledge of the functions of the Coast and Geodetic Survey, the International Ice Patrol, and the Board of Steamboat Inspectors. The first mentioned of these is by far the most important as it supplies many of our charts and most of our tidal data, together with the Sailing Directions for the United States. The second, under the Treasury Department (Coast Guard), furnishes information covering ice in or near the usual steamship routes to Europe and its duties have at time been performed by naval vessels. As the naval officer is often called on especially just before, or during war, to inspect merchant ships with a view to their being taken over by the Navy, a knowledge of the Board of Steamboat Inspectors and its requirements is necessary. The best possible available information on the subject will be found in the following paragraphs:

The purpose of the Steamboat Inspection Service is the security of life on board of vessels and the prevention of loss of vessels and of property thereon.

**Inspection required.* The laws governing the Service require at least one inspection each year of certain domestic merchant steam, motor, and sail vessels, and barges, by an inspector of hulls and an inspector of boilers of the Service. Foreign steam vessels carrying passengers from ports of the United States, except by countries having reciprocal inspection relations with the United States, are required to be inspected. Foreign steam vessels of countries having reciprocal inspection relations with the United States require an annual examination by inspectors of the Service.

The inspection of a vessel embraces the inspection of the hull and all equipment thereon, including life-saving appliances, fire apparatus, boilers, and machinery.

*Particulars of inspection.* In order that a better idea may be had of the extent of inspection and functions of the Service, some of the principal particulars of inspection are stated, as follows:

*Extracts from a letter to the author from the Supervisory Inspector General, Steamboat Inspection Service, Department of Commerce.

*Life-saving equipment.* At least one approved life preserver is required on board for every person allowed to be carried on every inspected vessel. As far as practicable lifeboats and life rafts are required to be carried. Lifeboats and life rafts are required to be provided with necessary equipment, such as oars, rowlocks, painter, and life lines. Lifeboats on ocean vessels are, in addition, required to be provided in part with rations, fresh water, sea anchor, with oil attachment, compass, lantern and matches, red distress signal lights, and mast and sail. Certain ocean steam vessels are required to carry line-carrying guns and projectiles. Ring life buoys, some luminous, are required to be carried on certain kinds of vessels. Vessels are also required to be provided with fog bell, fog horn, lead and line, running and anchor lights, and certain classes of vessels are required to carry deep-sea lead and line, storm oil, and be provided with bulkheads.

*Fire apparatus.* According to class of vessels, the following kinds of fire apparatus are required: steam pumps, hand pumps, fire extinguishers, water barrels, buckets (the barrels and buckets to be kept filled with water), axes, fire-alarm systems, water-sprinkling systems, and auxiliary lighting systems.

*Boilers and machinery.* Every boiler in use on vessels under the jurisdiction of the Steamboat Inspection Service is inspected at least once in each year. The boiler is subjected to an internal and external examination. At every annual inspection each boiler is subjected to a hydrostatic test in the proportion of 150 pounds hydrostatic pressure to 100 pounds of working pressure allowed. Boiler plate subject to tensile stress in boilers is tested as to physical and chemical qualities under the supervision of inspectors of the Service. Boilers must be provided with safety valves, steam gauges, approved fusible plugs, and other necessary valves and fittings. The machinery and all connections are inspected.

*Dangerous articles.* Certain dangerous articles, such as naptha, benzine, and nitroglycerine, are forbidden by law to be carried as freight or stores on steamers carrying passengers.

*Counting of passengers.* The number of passengers and crew that a vessel can safely carry is, in most cases, limited by the inspectors; and, from time to time, the inspectors count the passengers carried to see that the lawful limit is not exceeded.

*Licensed officers and crew.* Masters, mates, pilots, and engineers of certain classes of steam and motor vessels are required to be licensed by officers of the Service, after having had the required experience and passing an examination. An examination in the principles of first aid is now also required for original license. A visual examination is required for masters, mates, and pilots. Masters and chief mates of certain classes of sail vessels and masters of passenger barges of over 100 gross tons, with experience qualifications, after passing an examination, and operators of motor boats are also required to be licensed. No examination is required for operators of motor boats. Lifeboat men and able seamen are certifi-

cated. Licenses may be suspended or revoked for unskillfulness, misbehaviour, or negligence.

*The complement of licensed officers and crew* required to be carried on an inspected vessel is determined by the inspectors.

*Rules for vessels passing.* The Board of Supervising Inspectors, with the approval of the Secretary of Commerce, prescribes rules for steam and motor vessels in passing each other, and lights required to be carried by ferryboats, and by barges and canal boats when in tow of steam vessels, and by dredges, etc. The pilot rules are prescribed and published for three kinds of waters, namely: (1) Inland waters of the Atlantic and Pacific coasts and of the coast of the Gulf of Mexico, (2) Great Lakes and their connecting tributary waters as far east as Montreal, and (3) Rivers whose waters flow into the Gulf of Mexico and their tributaries, and the Red River of the North.

The authority for the pilot rules for the inland waters of the Atlantic and Pacific coasts and of the coast of the Gulf of Mexico is the act of Congress approved June 7, 1897, "To adopt regulations for preventing collisions upon certain harbors, rivers, and inland waters of the United States," as amended by various acts of Congress.

The authority for the pilot rules for the Great Lakes and their connecting and tributary waters as far east as Montreal is the act of Congress approved February 8, 1895, as amended by the Motor Boat act of June 9, 1910.

The authority for the pilot rules for the rivers whose waters flow into the Gulf of Mexico and their tributaries and the Red River of the North is section 4233, Revised Statutes, as amended by various acts of Congress.

*Organization.* The Supervising Inspector General is the head of the Bureau of Steamboat Inspection Service. Under him are ten supervising inspectors, and under the ten supervising inspectors are forty-six boards of local inspectors, each board consisting of an inspector of hulls and an inspector of boilers. Some boards have assistant inspectors of hulls and assistant inspectors of boilers, and clerks. The local boards and supervising inspectors are located in the principal cities of the United States. The ten supervising inspectors with the Supervising Inspector General form the Board of Supervising Inspectors. The Board of Supervising Inspectors meets at least once in each year and makes regulations for the government of the Service. These regulations are published under the title of General Rules and Regulations.

The authority for the establishment of the Steamboat Inspection Service and for its various functions is contained mainly in Title LII, Revised Statutes of the United States, and in various other Revised Statutes, and acts of Congress.

*History.* The Steamboat Inspection Service had its beginning in the act of Congress approved July 7, 1838, which provided for the better security of the lives of persons on board vessels propelled in whole or in part by steam. Various other acts of Congress affecting the Service have

subsequently been passed. The act of Congress approved August 30, 1852, really established the Steamboat Inspection Service, and the act of Congress approved February 28, 1871, gave what is the present law upon the organization and administration of the Steamboat Inspection Service, codified in part in Title LII, Revised Statutes, and which has been amended from time to time.

PUBLICATIONS AND FORMS

Laws Governing the Steamboat Inspection Service.

General Rules and Regulations Prescribed by the Board of Supervising Inspectors, four kinds, namely: (1) Ocean and Coastwise, (2) Great Lakes, (3) Bays, Sounds, and Lakes other than the Great Lakes, and (4) Rivers.

Pilot Rules for the Inland Waters of the Atlantic and Pacific Coasts and of the Coast of the Gulf of Mexico.

Pilot Rules for the Great Lakes and their Connecting and Tributary Waters as far East as Montreal.

Pilot Rules for the Rivers Whose Waters Flow into the Gulf of Mexico and their Tributaries, and the Red River of the North.

Annual Report of the Supervising Inspector General for the year ended June 30, 1921.

Certificate of inspection for steam or motor vessel.

License for master of steam vessels.

License for chief engineer of steam vessels.

Certificate of efficiency for lifeboat man.

Certificate of service for able seaman.

2. *The Magnetic and gyroscopic compasses, causes of error and correction of same. Advantages of the latter.*

Officers generally had only the faintest idea of the theory of deviations. They did not know the three causes of deviation when on an even keel; the three components of deviation; the cause of additional deviation when the ship heels; the difference between the heeling magnet and the Flinders Bar; the advantage of compensating on the magnetic equator and the necessity of recompensation for change of latitude provided there is no Flinders Bar installed; used the Flinders Bar for compensating for dip; only adjusted the heeling magnet after observations in *two* latitudes.

Most officers seemed to have memorized the practical compensation and were able to answer the practical problems whenever they could get on the proper heading and determine the deviation. This was about half the time.

About one-third of the officers examined, understood the physical principle of the gyroscopic compass and in replying to questions on this compass were prone to emphasize mechanical features, rather than broad operating features, such as freedom from variation, use behind armor on account of freedom from local magnetic influences; more accurate steering on account of absence of oscillation, etc. Governing principles, such as the seeking of the Meridian by the axis of the gyroscope, why the axis vibrates on each side of the Meridian and must consequently be "damped," and why it is necessary to apply mechanical corrections to the instrument for change in latitude and change in speed, were not mentioned by a great many.

3. *Duties of the Navigator pertaining to target practice and in battle; use of the Mooring Board and Battenberg Course Indicator for battle approach.*

The Navy Regulations direct that in battle (and of course in target practice) the Navigator shall be the Ship Control Officer and shall take station in the Conning Tower or elsewhere as may be necessary to enable him to assist the Commanding Officer in handling the ship. Few officers, who have not been Navigators, realize the extreme importance of this duty and that the battle may be easily lost through failure to get the ship into the desired position in the quickest possible time. To be successful, therefore, it is essential that the navigator be thoroughly familiar with all the tools placed at his disposal for accomplishing his job and among these are the Mooring Board and the Battenberg Course Indicator. It is needless to remark that these two articles are also invaluable for another purpose—mooring, or anchoring in position—so it behooves the young officer to be thoroughly acquainted with at least one of them. There are, of course, substitutes for these, as for instance, Bray's Approach Omnimeter and Hunter's use of the Universal Drafting Machine, but the Mooring Board and the Course Indicator are the "old reliables"—approved by the Department—and with which everyone is presumed to be familiar. The recent examinations, however, disclosed this presumption to be incorrect.

4. *An understanding of Zone Time and keeping Zone Time at sea.*

There is little to be said regarding the shortcomings under this

heading as "It's all in the book" and one has but to digest Article 1031, of the *Navy Regulations,* or Article 190, *Navigation, 1922,** to gain a complete knowledge of this subject. The chief difficulty seems to be that a great many officers were unable to determine the zone description from the known L.M.T. and Longitude.

5. *Certain parts of Nautical Publications.*

The knowledge of the contents of Nautical Publications on the whole was good, but there were certain particular parts of which many were inexcusably ignorant and these may be classified as follows:

(a) The current charts in the Tide Tables.
Comment: Inability to interpret them.

(b) Definitions in the front of the Light Lists.
Comment: Lack of fundamental knowledge.

(c) Ignorance of the fact that the Sunrise and Sunset Tables are made out for L.M.T., and tidal data in Standard Time.

6. *Lack of knowledge of harbor surveying.*

While the Navy has little general surveying to do, except in Cuba and Central America, the situation often arises where changes have been noted in small, rather unfrequented harbors and as these harbors have to be used from time to time by our small naval craft and by United States merchant ships, it becomes advisable as a matter of safety to re-survey them. Such a case came within the experience of the writer at Puerta Plata, D. R., while attached to the *Nashville.* It was found that the chart of this harbor was very incorrect both in the approach and at the anchorage, and that the conspicuous landmarks were not correctly plotted. A survey of this harbor was therefore directed and was completed in less than a month. It would have taken two months had the officers engaged in it not had a good knowledge of the principles involved.

7. *Inaccuracies in Day's Work.*

The solving of the Day's Work was, on the whole, only fair, and the plotting of the lines and fixes was miserable. The principal faults to be found were:

(a) In working out the "Interval to Noon" the hour angle from the a. m. *dead reckoning position* was used instead of the

*New Textbook at the Naval Academy.

"Navigator's Position after a. m. sight" which is the position on the a. m. line-of-position known as the "Computed Point." In other words, it is the point given by the value of "a" and through which the "line of position" is drawn. This is the most accurate position obtainable from one line as it is the mean of all possible positions. Also, in performing the computation of the equation for Interval to Noon, all reference to current in longitude was omitted and consequently the answer was not correct.

(b) Having obtained a fix for L.A.N., failure to run it up or back for clock noon.

(c) Lack of accuracy.

In the practical compass problems nearly all were familiar with the methods of placing the magnets but did not know how to set the azimuth circle to get on desired magnetic heading. This is of extreme importance when compensating at sea. Ignorance was also shown in plotting the curves and in the use of them if they happened to be successfully plotted. Further, it should be definitely stated whether L.A.T., or W.T., is used in the construction.

It is believed the foregoing seven subheads list the principal errors to be found in the papers referred to. Taken as being found in each paper they would indicate that knowledge of Navigation was decidedly on the wane. Such was not the case, however, but a sufficient number *were* found in almost every paper to offer a serious indictment against the younger officers in regard to their knowledge of navigation and the principles involved. All naval officers of the Line except those who have dedicated their careers to engineering only, *must* be good navigators. They may also be good gunnery officers, or radio fiends, but they *must be good navigators* just as they must be good seamen.

As stated earlier in this article the Department of Navigation at the Naval Academy endeavors to keep up and put into practice the latest thought in the Art of Navigation and it seems remarkable that officers generally, especially those who at any time may have to fleet up to Navigator's duties or who may be ordered to duty as Navigator, do not keep in touch with this department and have their names put on its mailing list for practical works and examinations. These practical works and examinations are always made out according to the latest practices and would be

invaluable in keeping up in Navigation; also, they are used by the Examining Board in preparing examinations for promotion. Keys (gouges) are furnished with them. Correspondence is always invited and the Department will always endeavor to furnish the latest information on any subject pertaining to Navigation. It should also be borne in mind that the Pilot Chart issued monthly contains a fund of information useful alike to the naval officer and the merchant marine.

It is hoped that the near future will see an awakened interest in this most important subject on the part of the younger officers of the Service.

The time available at the Naval Academy is too limited to do more than teach the fundamentals and it is up to the graduate to broaden his knowledge after becoming a commissioned officer. The Naval Academy aims to build a firm foundation and leaves it up to the individual to "build his house."

# DISCUSSION

## Life Insurance as Applied to the Naval Service

(See Whole Number 238, Page 2107)

Rear Admiral T. J. Cowie, (SC) U. S. Navy.—Mr. Webb's Tables II and III, comparing the deaths among all the Naval Academy graduates (1860-1916) and among those insured in the ten companies (1917-21) with the American Tables, seem to show Naval Academy graduates rather delicate, as they show 96 per cent of tabular mortality, while those insured (in the ten companies) reached this percentage only in 1918 and then the average is 68 per cent of the tabular mortality for the five years mentioned.

There is not sufficient information for a full comparison to be made, but obviously it is hardly fair to compare *all* Naval Academy graduates with selected risks accepted by insurance companies. The former could not be expected to insure materially less mortality than the average American, while the latter are selected at various ages.

It is generally known that of late years, the death rate of elderly and old people is going up and of those below middle age going down. This is in accordance with Mr. Webb's table for Naval Academy graduates. If he had not included a number of early classes who are now nearly all dead, his percentage would have been materially lower. Presumably, the deaths given for the insurance companies are a comparison of a single year and are those on the rolls with the tabular mortality. If this be the case, it is obviously unfair to compare this with deaths extending back over sixty years. We know that during these sixty years the death rate has steadily declined.

The reason given by Mr. Webb for the discrimination of insurance companies against Naval Officers seems rather dubious.

I fully agree with Mr. Webb as to the order of preference of types of life insurance. What we buy from insurance companies is protection and straight life or long-term life is the cheapest protection. Insurance policies with investment features are poor *investments.*

The rates of $1,000 insurance given by Mr. Webb on page 2113 for a man of twenty-five years of age vary from $18.28 for straight life, the cheapest form, to $44.84 for twenty-year endowment.

The proof of the pudding is in the eating.

I give below the *actual* cost of $1,000 insurance in the Navy Mutual Aid for all members who entered between the ages of twenty-four and twenty-seven and subsequently died, arranged in ten-year groups. These

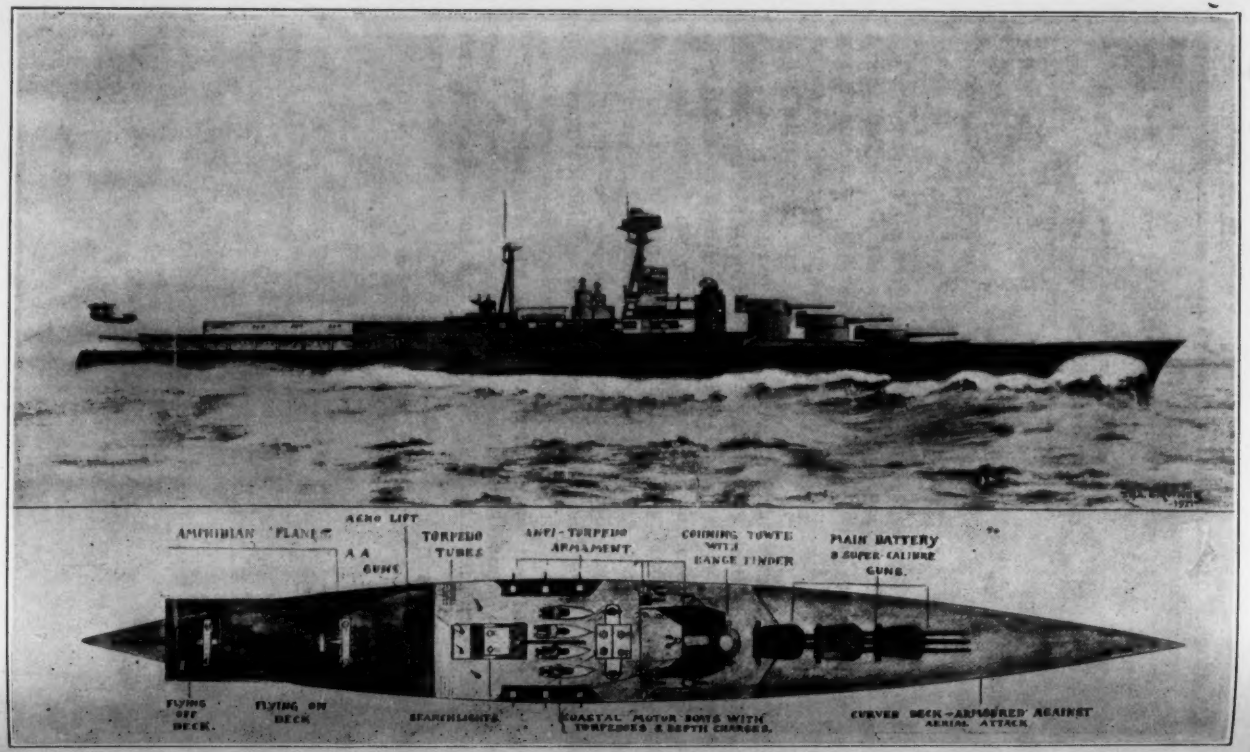
are from the amounts actually paid in and are taken from the Annual Report for 1921, which gives the deaths of all members since organization, with the cost per $1,000 at date of death.

| *Years* | *Number of deaths of members between twenty-four and twenty-seven years when entering* | *Average cost per $1,000 of Benefit paid* |
|---|---|---|
| 1880-89 | 5 | $ 4.16 |
| 1890-99 | 10 | 8.95 |
| 1900-09 | 6 | 9.98 |
| 1910-19 | 11 | 10.61 |

Of course, in the early days the cost was necessarily small, but the figures for the last twenty years show a negligible rise and the lowest straight life figure ($18.28) quoted by Mr. Webb is somewhat more than seventy-five per cent greater than the Navy Mutual Aid's actual experience of the last twenty years.

It may be of interest to here note that the Annual Report of the Navy Mutual Aid Association for 1922 shows a death rate per thousand of 9.41 and an average age of 64.92. It also shows the actual cost per thousand during the year of an officer of the age of twenty-five as $5.11. It should also be noted that the Navy Mutual Aid Association takes charge of pensions, War Risk Insurance, compensation, and all other claims for widows and dependents of deceased members, doing everything possible to obtain speedy action and avoid every possible inconvenience or annoyance to widows.

From what has been stated, it seems to me that the first duty of every officer of the Navy is to obtain protection and aid afforded by this Association, and then procure all the additional straight-life insurance he can possibly carry.




FUTURE FIGHTING SHIPS: AN IMPRESSION

# PROFESSIONAL NOTES

PREPARED BY

LIEUTENANT COMMANDER F. W. ROCKWELL, U. S. NAVY

and

LIEUTENANT J. B. HEFFERNAN, U. S. NAVY

## GENERAL ARRANGEMENT

VESSELS BUILDING — Great Britain ..... 483
NAVAL POLICY — France ..... 487
MATÉRIEL — Germany ..... 491
PERSONNEL — Japan ..... 493
United States ..... 494
MERCHANT MARINE ..... 500
ENGINEERING ..... 501
AERONAUTICS ..... 507
ORDNANCE ..... 510
RADIO AND NAVIGATION ..... 511
MISCELLANEOUS ..... 513
CURRENT NAVAL AND PROFESSIONAL PAPERS ..... 529

## GREAT BRITAIN

THE NEW BATTLESHIPS.—The contracts require that both ships be completed in three years and the contract price is about six million pounds apiece. The displacement of the vessels will be in accordance with the treaty limitation, 35,000 tons each: Their length will be 660 feet; their beam 106 feet, and their speed will be symmetrical with that of the older British battleships—23 knots. It is reported that both ships will have oil-burning boilers, and that they will be driven by turbines through reduction gearing. The fuel oil capacity provided for will give these ships a far greater cruising radius than any other British capital ships. The plans call for three triple gun turrets, mounting 16-inch guns. Thus these ships will have nine 16-inch guns, and it is interesting to note that after predicting the failure of our triple turrets the British have at last adopted them, and not only that but they will have the 16-in. triple turret before we do, because the *Maryland*, *Colorado*, and *West Virginia*—our 16-in. gun ships—carry their eight 16-in. guns in twin turrets. Statements in some papers are to the effect that two of the three turrets are to be located on the forecastle, while the third is to be located just abaft the bridge and forward of the funnel. If this is the case then the quarter-deck will be entirely clear and there will be practically no possibility of astern fire. It is further reported that a heavily armored citadel will enclose the barbettes of the three turrets, the conning tower, and possibly the uptakes to the funnel.

Reports in the press have differed in regard to the armor protection of the ship, but it is now reported that the main belt will be a maximum thickness of 13 inches. Apparently there are to be three armored decks, including the weather deck.

The anti-aircraft battery is said to consist of twelve 4-in. high angle guns, mounted in pairs. The secondary battery will consist of twelve 6-in. guns, mounted in three 2-gun turrets on each broadside. There will be above-water triple tubes for torpedoes, fitted it is said for the 21-in. Whitehead torpedo.

As mentioned above the quarter-deck will be large and free from obstructions and it has been reported that it is designed so in order to provide a flying off deck or landing deck for airplanes. It is further reported that the turrets will be operated by hydraulic gear and that the steering gear will be hydraulic.—J. B. N.

BRITAIN'S NAVAL HOLIDAY.—A special interest attached to the laying-down of the new minelayer at Devonport last Wednesday. The vessel herself may not be a unit of the first magnitude, but she has the distinction of being one of the only two men-of-war that are now under construction for the British Navy. Thirteen months before—on November 1, 1921, to be precise—the keel of submarine *X-1* was laid at Chatham, after a pause of three years in new naval construction. During those thirty-six months that succeeded the armistice, when the only work in British dockyards was confined to finishing off vessels begun under the war program, the laying of new keels went on apace in the yards of America and Japan. The post-war building activities of those two Powers included a score of capital ships of the largest dimensions, a still larger number of fast cruisers, and shoals of torpedo craft, surface and submarine. It is true that the Washington Treaty has temporarily suspended work on most of the capital ships, but all other types are being proceeded with, and the light cruiser and submarine forces of Japan alone will soon be superior to ours.

There is, of course, no precedent for the stagnation in naval shipbuilding which has prevailed in this country since the war. Admitting that the circumstances, both political and financial, have justified our negative policy in this respect up to now, it becomes a question as to how much longer we can afford to keep our dockyard slips vacant. If battleship competition has ceased, there is still a pronounced rivalry in other man-of-war types whose tactical value was revealed by war experience. Can Great Britain look on with equanimity at the rapid multiplication of foreign cruisers and submarines, and do nothing to maintain her own position with respect to these indispensable craft? It would, no doubt, need some courage to bring forward at this juncture, a new program of any description, having regard to the state of the budget and the staggering cost even of minor naval construction. But that is nevertheless the duty that must be undertaken by the Admiralty in the near future if our naval position is not to be hopelessly compromised. There is one question we would put without any tendencious purpose, but merely to focus attention on the hard facts of the situation: At the present rate of progress shall we have anything to match the splendid fleet of twenty-five light cruisers—with an average speed of 33 knots—which Japan will have in commission three or four years hence?

Details of the new minelayer are not yet available, but her principal features will be approximately:

| | |
|---|---|
| Displacement | 7,000 tons |
| Length | 500 feet |
| Beam | 58 feet |

She has been designed by Sir E. H. Tennyson d'Eyncourt, and the design marks a new departure, so that she may be regarded as an experimental ship; and, although the character of her armament is at present confidential, it is believed that she will be heavily armored for a vessel of this

class. Whether her construction will be rapid or otherwise is not yet known—this will depend upon the Government's naval policy in the future, and upon international developments; but the Navy Estimates for the current year only provide for £294,990 to be spent upon her up to the end of next March, and of this sum £50,000 is appropriated for dockyard labor and £75,000 for dockyard materials. The estimated expenditure upon the vessel up to the end of last March was £82,588, so that the total estimated expenditure up to the end of the financial year will be £377,578. It is an interesting fact that no other Royal yard will this year lay down a vessel of the dimensions of the new mine-layer.—*Naval and Military Record*, 6 December, 1922.

AIRCRAFT-CARRIERS.—The new aircraft-carrier *Hermes* is omitted from the Admiralty statement, probably because she is rapidly approaching completion. This vessel has been something of a mystery ship up to now, and the details of her which appear in Dr. Parkes' new book, *Ships of the Royal Navy*, are therefore of particular interest. In general design she is, it appears, a smaller edition of the *Argus* but, unlike that famous ship, the *Hermes* has a funnel and a tripod mast, both of which are placed over on the starboard side amidships. Her equipment, which includes all the latest types of gear for landing, handling, and launching aircraft, is considerably in advance of anything formerly employed for the purpose.

As the ship can steam at 25 knots and mounts the respectable armament of seven 6-in. guns, four 4-in. anti-aircraft, and nine smaller pieces, she would be no mean antagonist as a cruiser, although the big area of vertical and horizontal target she presents would handicap her in a duel with any conventional warship. Our largest aircraft carrier, the *Eagle*,* is now emerging from her big refit with an extra funnel and a tripod mast, together with numerous other improvements which, it is to be hoped, will render her thoroughly efficient for the work she has to do. From beginning to end this ship must have cost an enormous sum of money.—*Naval and Military Record*, 13 December, 1922.

NEW SUBMARINE DEPOT SHIP.—Converted into a submarine depôt ship at a cost of over £200,000, H. M. S. *Cyclops*, late repair ship, was commissioned at Chatham on Thursday for service with First Submarine Flotilla. The *Cyclops* is to take the place of the *Pandora*.—*Naval and Military Record*, 27 December, 1922.

THE TRAINING OF NAVAL ENGINEERS.—An announcement of capital importance to the Navy in general and the engineering branch in particular was made by the Admiralty on December 15. It signifies the virtual abandonment of the scheme which aimed at suppressing the distinction between the executive and engineering branches of the Navy. Introduced in 1902, this scheme has been in force twenty years, though it did not become absolute until 1905, entries of engineer students having been continued, on a much reduced scale, for three years after the system of common entry had been adopted in principle. The premises upon which the Admiralty of 1902 based its decision to revolutionize the method of entering and training officers for the engineering branch were set forth at length in the *Selborne Memorandum* of that year, and amplified in the *Cawdor Memorandum* issued three years later. In both documents the commanding influence that machinery had come to exert in the naval sphere was emphasized. "In the old days it sufficed if a naval officer were a seaman. Now he must be a seaman, a gunner, a soldier, an engineer, and a man of science as well." Therefore, it was argued, the logical course was to

* The *Eagle* was formerly the Chilian battleship *Almirante Cochrane*.—EDITOR'S NOTE.

train the future officer to be equally at home on the bridge or in the engine room. Fervid partisans of the scheme predicted a time when the deck officer and the engineer would no longer be specialists in the sense that one could perform deck or engineering duties better than the other. They were, in fact, to be absolutely interchangeable. This idea, like so many other daring innovations, sprang from the fertile brain of Lord Fisher, but it is now almost universally admitted to have been one of his least happy inspirations. Certainly it never evoked enthusiasm in the engineering world—as our own comments at the time clearly showed—nor was it ever warmly approved by the Navy as a whole. The first departure from the basic principle of interchangeability was foreshadowed in 1918, when, under the Admiralty regulations promulgated that year, a large majority of engineering specialists renounced the option of reverting to deck duty between seven and a-half and nine years' seniority. The process of separation was carried a long stride forward in 1920, when the First Lord announced in his statement on the Navy Estimates that officers selected for the engineering branch when sub-lieutenants would, after taking the advanced engineering courses, be definitely ranked as engineer officers, and never thereafter revert to deck duties. It was essential, the First Lord added that the majority of officers forming the engineering branch should be "whole-time" officers, in view of the fact that a definite distinction existed, both as regards knowledge and capabilities, "between those who are to be trained in the science of naval war and strategical and tactical methods of fighting, and those who are to deal with the upkeep and maintenance of engineering and mechanical appliances which are necessitated by the complex machinery and weapons of modern war. Each side requires a special study, and for this reason final separation of the branches is essential." These are truths that one would have supposed to be as patent in 1902 as they are today, for even twenty years ago the whole tendency of the professional and industrial system was toward greater specialization. In July, 1920, an Admiralty statement explained the new policy in detail. In accordance therewith, the transfer of duties in connection with the electrical installations of warships was arranged, these duties, hitherto vested in the torpedo lieutenant, a deck officer, being taken over by the engineering department. This change is to be made gradually, and will not be completed until a sufficient number of engineer officers who have qualified in the advanced electrical course are available to relieve the torpedo specialists throughout the fleet of responsibility for the electrical installations on board.

But while the two branches are henceforth to be entirely separate so far as their professional duties are concerned, the present system of common entry for both executive and engineer officers, and for common training until a certain stage is reached, will be continued. This means that the one thoroughly commendable feature of the original Selborne scheme is to be retained. Common entry undoubtedly fosters that close mutual understanding and co-operation between executives and engineers which, in the Admiralty's words, are "essential to the efficient use of a fleet in modern warfare." The future deck and engineer officers of the Navy will therefore enter Dartmouth together, and together undergo that early training which stamps the impressionable mind of youth so indelibly. Both will be bred up, as it were, in the traditions of the great Service to which they belong. Final separation will come immediately on passing out of the cadet's training ship, when those destined for the engineering branch will undergo a course of four years in mechanics and electricity at Keyham College and in H. M. S. *Vernon* before being assigned to duty afloat. Some years must, of course, elapse before officers trained under the new system become available for duty as engineer officers, and consequently,

the present method of specialization is to remain in operation for the time being. The final selection of officers to specialize under the existing scheme is to be made early in 1924, and the final course will commence in October, 1924.—*The Engineer,* 22 December, 1922.

## FRANCE

NINE NEW SUBMARINES.—A telegram from Toulon announces that the Minister of Marine, M. Raiberti, has reached an agreement with the naval commission of the Chamber of Deputies for the rapid construction of nine submarines. Two of these boats will be constructed in the workshops of the Toulon Arsenal.—*New York Sun,* 10 December, 1922.

NAVAL CONSTRUCTION.—The debate on the Navy Estimates in the Chamber of Deputies did not cover the entire program of naval construction, for no reference was made to the light cruisers which it is proposed to build, and the credit of 1,045 million francs asked for is intended for the reorganization of the marine as well as for the construction of a dozen submersibles. It is argued that while the country had to concentrate on military armaments during the war the navy went back to the extent that it is no longer regarded as an efficient arm of defense. The most urgent need is, therefore, to reorganize it on a more scientific basis, with laboratories and facilities for carrying out experimental work and special attention must be paid to the training of an expert staff, which should be maintained in the highest state of efficiency. As the policy is based upon coast defense, the two chief factors are aeroplanes and submarines, in both of which it is claimed the country is deficient. Of the forty-seven existing submarines, it is stated that only eighteen are of any real military value. There are fifty seaplanes and thirteen airships, but in view of the progress of aviation, it is considered that the airship has become too vulnerable and there is no intention of building others. The program consists, therefore, in making the coast impregnable with the aid of seaplanes and submarines, which would keep hostile ships at a distance, while cruisers in which protection is entirely sacrificed to speed would assist in keeping the sea route open between France and the North African colonies. The construction of battleships warranted by the Washington Treaty, not yet ratified, although advocated in some quarters, has been abandoned for the time being on account of the necessity of devoting all the funds available to a purely defensive organization.—*The Engineer,* 22 December, 1922.

NEW PERSONNEL LAW.—We have commented several times on the proposed bill governing commissioned personnel. The following are the changes to take effect in each corps and show the principal modifications under the new law.

*Line Officers.* As compared with commissioned personnel, allowed by law of January 1, 1919, the new bill calls for the following reduction:

| | |
|---|---|
| Vice Admirals | 2 |
| Rear Admirals | 3 |
| Captains | 25 |
| Commanders | 20 |
| Lieutenants | 92 |
| Lieutenants (jg) | 85 |
| Ensigns | 164 |
| *Lieutenant Commanders | 105 |

*The allowance of Lieutenant Commanders is reduced to 215. The complement of Lieutenant Commanders as set forth by the law of June 10, 1917, is: 320, which number should have been attained by 1927.

The requirements necessary for promotion to the grade of Captain and Rear Admiral have been made more rigorous. Command at sea is one of the conditions absolutely necessary for promotion to the rank of Captain and Rear Admiral. Sea duty in command for a period of one year to eighteen months for promotion to Captain, and from two to three years for promotion to Rear Admiral, is required by the new law.

In addition, with the supression of the rank of Captain, "residence fixe," the new bill provides for the following reduction of commissioned personnel from the cadre of "residence fixe":

| | |
|---|---|
| Commanders | 5 |
| Lieutenant Commanders | 9 |
| Lieutenants | 5 |

The age limit for officers of "residence fixe" will be the same as for officers of the corps other than the line: i.e.

| | |
|---|---|
| Captains | 58 years |
| Lieutenant Commanders | 56 years |
| Lieutenants | 53 years |

This will have as a consequence the addition of two years on the age limit of Captains and Lieutenant Commanders of the corps of "residence fixe." For all other corps, except the Line, the new age limit will be below that in vogue at present.

*Engineering Officers.* As compared with the commissioned personnel, the new law calls for the following increase in the Engineering Corps:

| | |
|---|---|
| Captain | 1 |
| Commander | 3 |
| Lieutenant Commanders | 10 |

and for a reduction in the Engineering Corps as follows:

| | |
|---|---|
| Lieutenants | 46 |
| Lieutenant (jg) | 100 |

This important reduction in the lower ranks of the Engineering Corps is partially compensated due to the creation of forty-five Mechanic Warrant Officers.

Direct promotion from civil life is also open to the grade of Ensign (Engineering Corps) for young men with Engineering Diplomas from the school of Central Arts and Manufactures. The number of vacancies reserved for this class should not be more than one-fifth of the Ensigns promoted to Lieutenant (jg) during the preceding year.

The number of vacancies reserved for Chief Warrant and Warrants for promotion to Lieutenant (jg) should not exceed one-third of the number of Ensigns promoted to Lieutenant (jg) during the preceding year.

*Naval Construction Corps.* As compared with the commissioned personnel, the new law calls for the following reduction in the Construction Corps:

| | |
|---|---|
| Vice Admirals | 1 |
| Rear Admirals | 5 |
| Captains | 9 |
| Commanders | 6 |
| Lieutenant Commanders | 2 |
| Lieutenants | 20 |

and for an increase in the Construction Corps as follows:

| | |
|---|---|
| Lieutenants (jg) | 1 |

*Engineers d'Artillerie Navale.* As compared with the commissioned personnel, the new law calls for the following reduction in this corps:

| | |
|---|---|
| Vice Admirals | 1 |
| Rear Admirals | 2 |
| Captains | 5 |
| Commanders | 4 |
| Lieutenant Commanders | 9 |
| Lieutenants | 20 |

and for an increase in this corps as follows:

| | |
|---|---|
| Lieutenants (jg) | 1 |

*Supply Corps.* As compared with the commissioned personnel, the new law calls for the following reduction in this corps:

| | |
|---|---|
| Rear Admirals | 2 |
| Captains | 1 |
| Lieutenant Commanders | 13 |
| Lieutenants | 12 |

and for an increase in this corps as follows:

| | |
|---|---|
| Commanders | 4 |
| Lieutenants (jg) | 8 |

The course of study at the Commissary School is increased from one to two years.

In case the proposed measures of the bill will be insufficient to bring the commissioned personnel down to the minimum required by the new law, steps will be taken to reduce the excess by not filling vacancies as they occur, except as follows:

For officers of high rank one promotion for each two vacancies that occur.

For officers of the lower grades two promotions for each three vacancies that occur.

We have no need to insist on the inconvenience that will be caused by such a method. It will not only cause a slump in promotion, but the reduction in certain corps will not become effective for a long time. This measure will in the long run be detrimental from an economic standpoint, as well as to the service and the general welfare of the officers.—*Moniteur De La Flotte,* 2 December, 1922.

FRENCH NAVY NOTES.—As 100,000 tons of other fleet auxiliaries are to be provided under the Raiberti program, the French Fleet in 1940 may include just over 700,000 tons of warship displacement, that is about the English battleship tonnage under the Washington agreement. But taking into consideration the actual trend of French naval and Parliamentary opinion, it is safe to say that the 1922 twenty-year program will undergo considerable modifications, *poussière sousmarine et aérienne* being certain to usurp the place allotted on paper to larger classes of ships. The only certainty is as to the yearly outlay on new construction, which will average 300,000,000 francs (hardly £4,000,000 in pre-war value).

* * * * *

Coastal batteries are apparently part of *la Marine Française nouvelle,* and with triumph in his voice, Admiral Guépratte spoke of *beaux canons* of 18-in. bore, in groups of four, to form strategic batteries on selected points of our littoral. The power and range of 1,500-kilo shells are impressive enough, and bomb-proof, aerially-controlled batteries of that caliber perched up on high promontories no enemy battle fleet coming within twenty miles of the French coast could afford to ignore, at least in daytime.

Of course, monster guns, well posted and overlooking narrow straits (Dover-Calais, Gibraltar, (Bizerta), could exercise permanent and even weighty influence; but then smoke-producing and asphyxiating shells and bombs are new and effective antidotes to fixed batteries, and the mistake has been in ignoring those *faits nouveaux*. The fact is that the Marine Française has not changed its methods, and proceeds by fits and starts: the latest craze is the *défense des côtes*, in foolish disregard of secular experience. *Guerre de mouvements* invariably gained the upper hand over *guerre de position*.

* * * * *

From the discussion in the "Commission des Affaires Etrangères" and the significant declarations by Minister Raiberti, the Poincaré Government has decided, to the surprise and disgust of the majority of French naval men, to ask for the ratification of the "Panama Canal battleship limitation agreement" by the Chambers, and this with the least possible debate, so as to avoid regrettable public criticism of Allied government. Considerations of foreign policy alone have determined that unexpected move: viz., to provide no "handle" for anti-French slanders by the Boche subsidized propaganda, to give to the world an example of respect of international agreement and treaties even when conditionally contracted under circumstances foreign to fair play, and also to avoid lowering the prestige and power of French Premiers (as would be the case if ex-Premier Briand were disavowed).

* * * * *

Treaties signed France will always ratify and respect, but she claims her sovereign rights in what concerns other classes of defensive vessels, and will not be tricked again into Washington traps. *La France a besoin d'une marine pour défendre son prestige, son empire colonial et sa propre existence. Il faut continuer notre effort, créer l'aviation maritime et organiser la défense des côtes.*" (Minister Raiberti's declarations in the Chamber.)

* * * * *

The Paris Journal de la Marine *Le Yacht* publishes a timely illustrated article on the *Armament du Croiseur léger*, at the moment when the Raiberti Administration is contemplating the laying down of the three remaining cruisers of the Guisthau program (to be named *Bouvert, Cassard, Surcouf*), and considering anew the question of size and offensive power. Fine ships, the fastest yet projected, as the Primauguets in hand at Lorient and Brest undoubtedly are (8,000 tons, 100,000 h. p., 35 knots, armored sides over motors), they have a weak point: viz., an inferior armament of eight 6-in. weapons, exceedingly improved *naturellement* and *trés superieurs* to all weapons *ejusdem farinoe;* and no amount of literature can make them a match for the British *Raleighs*, that are armed with seven excellent 7.5-in. weapons, nor even for the American *Omahas*, which carry 12 guns of 6-in., firing six ahead. Speed is a splendid asset in cruisers, but it is ephemeral; safety lies in speed and caliber combined, as demonstrated at the Falklands.

* * * * *

A battery of six guns of 7.6-in. bore is considered adequate for a 10,000-ton cruiser of 34-knot speed, although eight such guns in twin turrets disposed for end-on fire have many partisans. *Le Yacht* successively examines five different ways of distributing the armament. Single gun positions, as in the British *Raleigh*, combine the advantages of all-round volume of fire, reduced vulnerability, and end-on fire, but the disposition affording the best utilization of the armament—five guns axially and six abeam—is one comprizing two amidship turrets en échelons and a single

gun on the bows and stern respectively.—J. B. Gautreau in *Naval and Military Record*, 27 December, 1922, and 3 January, 1923.

## GERMANY

THE WASPS' NEST IN FLANDERS.—In a series of articles contributed to the *Marine Rundschau*, Commander E. E. Schulze describes in some detail the work of the German light forces which operated from the bases in Flanders during the war, and, as the writer was attached as senior staff officer to that command, his account may be accepted as authoritative. Referring to the net barrage laid by vessels of the Dover Patrol on April 24-25, 1916, extending from the Scheldt estuary as far as Dunkirk, he pays a tribute to the seamanlike skill with which this work was carried out. He affirms, however, that our patrols only watched the barrage during the hours of daylight, and that as soon as dusk fell they invariably withdrew to Dunkirk. It was therefore a simple matter for the Germans to remove, under cover of darkness, enough of the nets to leave channels clear for the passage of their *U*-boats. Only in the last year of the war was the barrage patrolled at night, and although this, it is claimed, did not prevent sweeping operations from being continued with success, the writer admits that the increased vigilance of our patrols was very trying. "We were particularly worried by the small British motor torpedo-boats (C.M.B.'s), which from the spring of 1917 were more and more in evidence. Their high speed and the difficulty of seeing them made these boats a danger not only to our submarines, which were forced to cruise on the surface in the shallow coastal waters, but to all surface craft as well, and we were therefore compelled to abandon the practice of keeping our destroyers constantly on patrol before the swept channels."

Why the Germans did not themselves make more use of mines and other obstructions in order to render the Flanders coast secure from attack is explained by Commander Schulze. The chief reason was that mines had proved to be as dangerous to friend as to foe, and especially to the *U*-boats, which could never be certain of approaching the coast from a given direction. Thus mine-laying was but rarely resorted to in the Flanders zone, and then only for definite objects—as, for instance, in the winter of 1914-15, when a field was laid off the Scheldt in anticipation of "a British breach of neutrality." The fact that on May 7, 1917, the destroyer *Maori* was mined on the Thornton Bank, north of Zeebrugge, so impressed the British, we are told, that for a long time afterwards they feared mines where none existed.

With the development of the *U*-boat war on trade every other branch of the German naval service was subordinated to the furtherance of this special campaign. In the beginning, however, the possibilities of the Flanders coast as a base for submarine operations were not realized by the German Fleet Command. The first submarine to enter Zeebrugge was the *U 12*, which arrived on November 9, 1914, and was followed some time later by the *U 11*, both boats making several cruises from that base. On March 16, 1915, *U 28* brought the first prize into Zeebrugge. None of these boats, however, was permanently stationed there, and the first to be specially detailed as a unit of the Flanders command was the *U B 10*, which had been put together in Antwerp. The "Flanders U-boat Flotilla" did not come into existence till March 29, 1915. Thereafter it increased steadily in numbers and dimensions, until October, 1917, it was found expedient to divide it into two formations. It attained its maximum strength in July, 1917, when thirty-eight boats were in service. These Flanders submarines, we learn, were responsible for sinking 2,554 vessels with an aggregate of some 4.4 million tons, and thus accounted for thirty-

three per cent of the total tonnage destroyed. Their own losses comprised eighty boats, 145 officers, and far more than 1,000 men.

The main value of the Flemish bases for *U*-boat raiding lay in the fact that they were nearer by about 300 miles than the German home ports to the main traffic routes of the Channel, the south coast of Ireland, and the west coast of France, and the distance thus saved on the outward and homeward voyage increased by so much the radius of the boats in the actual zone of operations. True, it was contended by some that this advantage was nullified by the greater danger incurred in passing through the Dover Strait, but according to Commander Schulze that was not so. The proportion of casualties to tonnage sunk was no higher in the Flanders flotilla than elsewhere. Not until the year 1918, when the British, after prolonged and fruitless attempts, at length succeeded in closing the Strait with mines moored at a great depth, thus making submerged navigation almost impossible, did the tale of *U*-boat casualties become so high as to be prohibitive. When that happened the boats were compelled to proceed to their hunting grounds by the north-about route round Scotland.

The writer argues from this that the *U*-boat ruthless war on trade began too late. It was only adopted, he declares, when the prospects of success had already dwindled appreciably, and when the enemy's counter-offensive was becoming formidable. "It is not possible today, any more than it was at the time to offer mathematical proof that the *U*-boat war, begun at the right moment, would have been successful, but that is what every *U*-boat commander and all of us firmly believed. It is in any case the fact that it was begun a year too late. In spite of the limited number of boats, more could have been achieved in the spring of 1916."

This is an article of faith with nearly every German commentator on the war at sea, but it is not borne out by an objective study of the facts. Had ruthless submarining commenced a year earlier it is probable that Allied counter-measures would have been developed as effectively then as they were at a later date, while the far smaller number of *U*-boats in action would have tended to simplify the problem. Moreover, if the *U*-boat challenge brought America into the fray in 1917, it would no doubt have had the same effect in the previous year, and there is no reason to suppose that American intervention in 1916 would have been less prompt and vigorous than it proved to be twelve months later. One may even share German regrets that *U*-boat frightfulness was postponed so long. Had it been adopted in 1916 the war would almost certainly have ended in 1917, the result would have been the same, and millions of lives and infinite treasure would have been saved. Intelligent Germans know this very well, and we may therefore dismiss their laments at the belated introduction of ruthless submarining as propaganda of the "face-saving" variety.

The zone of operations for which the naval command in Flanders was responsible embraced the east coast of England from the South as far north as Flamborough Head, the Channel, the French west coast, the Bay of Biscay, and the southern area of the Irish Sea. It was plotted into large squares, to each of which a *U*-boat was detailed, though without being definitely restricted thereto. Only the mine-laying boats had stringent orders not to deviate from their prescribed route. The imposing dimensions to which the Flanders force had grown by May, 1918, are revealed by a tabular statement of the units it then comprised. There were nineteen destroyers, organized in four half-flotillas, under the command of Commander Conrad Albrecht; sixteen torpedo-boats of the small *A* class; a motor-boat division of seven units; a minesweeping division composed of twenty-four motor boats and four launches; and a

few auxiliary craft. The submarine force of two flotillas had a total strength of thirty-four boats, twenty-two of which were of the *U B* type and the remainder *U C* mine-layers. The whole organization was as perfect as four years of intensive work could make it, all accounts agreeing that the Commander-in-chief, Admiral von Schröder, and Commander Bartenbach, in charge of *U*-boat operations, were officers of conspicuous ability. It will be seen, therefore, that the Dover Patrol had to deal with no mean antagonist. In the light of these revelations, and bearing in mind the comparatively meager resources at their disposal, it becomes a question whether full justice has been done to the work performed by Admiral Sir Reginald Bacon and his successor, Admiral Sir Roger Keyes.—Hector C. Bywater in *Naval and Military Record*, 20 December, 1922.

## JAPAN

NEW-TYPE CRUISERS ORDERED BY JAPAN.—When the Washington Conference fixed the limit of displacement for warships below capital rank at 10,000 tons, it was fairly evident that the majority of such vessels laid down thereafter would be of this maximum size. Japan, in fact, at once tore up the plans she had prepared for a series of 7,000-ton cruisers and redesigned them on a basis of 10,000 tons. The first two ships of this formidable class were ordered last fall, and according to information just received from Tokio they are to be commenced early in the coming spring, the one at Sasebo and the other at the Kawasaki yard, Kobe.

They will be the most powerful ships of their type in any navy, far surpassing the American *Omaha* class of 7,700 tons and leaving behind even the 9,700-ton *Raleigh* class of the British navy. They will be over 600 feet in length; sixty feet in beam, and of high freeboard, this latter feature, which is characteristic of all recent Japanese cruisers, giving them fine seagoing qualities. Turbine machinery, with gearing, and oil-fired boilers will enable them to steam at 33½ knots, but when a full supply of oil, ammunition and war stores is on board the speed will probably be brought down to 32 knots. A few of the boilers will be fitted for coal burning.

So great is the fuel capacity that with all burners full these vessels will be able to steam 14,000 miles at moderate speed. Along the sides in way of machinery spaces there is to be strong armor plating which, together with the horizontal deck protection, will interpose at least five inches of hardened steel between the ship's vitals and an enemy's fire. Below the water line the hull is so honeycombed with compartments that the explosion of one torpedo, or even of two, would probably not disable the ship.

The main battery will consist of six 8-in. rifles of high power and long range. They will be mounted in double turrets, two of which will be forward and one aft. As the second turret will be raised to fire over the first, four guns can be trained right ahead, two astern and all six on either broadside. The 8-in. guns are of the very latest model, designed and built in Japan, and are thirty-four feet long. On mountings specially designed for rapid loading, each gun can fire six aimed rounds per minute, and as the shell weighs 250 pounds, the six guns firing on the broadside can discharge 9,000 pounds of steel and explosive per minute.

Besides these six big guns there will be a battery of 4.7-in. rapid-fire pieces on high-angle mounts, enabling the guns to be used against either surface or air targets. Finally there will be twelve torpedo tubes.

Each ship will be equipped for carrying and launching four airplanes. With the exception of some minor fittings, the whole of the material and equipment of the four vessels will be of Japanese manufacture. The

contracts for the first two call for delivery, complete for sea, inside thirty-four months from the date of laying down. The third and fourth representatives of the class have been ordered, but may not be commenced till late in 1923.

When these vessels are completed, Japan will possess a cruiser squadron absolutely unique in battle power and steaming range. The cost per ship is estimated at $11,000,000.—Hector C. Bywater, in *Baltimore Sun*, 11 January, 1923.

JAPAN DISSATISFIED.—According to a Tokio despatch to *The Times*, dated December 17, "there are unmistakable indications that the Opposition leaders reflect the growing obsession that Japan had given all and obtained nothing at the Washington Conference." The same despatch quotes a professor of the Tokio University as asserting it to be impossible to approve the American attitude while Japan was steadily carrying out the program of naval and military retrenchment agreed to among the Powers. "Japan today has probably gone farther in carrying out the Washington agreements in the letter and spirit than any of the five Powers. The dismantled ships seen on her coast, her reduced naval and military personnel, and her withdrawals from the mainland testify to this."

These statements are not quite in accord with information previously received. Whatever the Japanese public may have been taught to believe, their naval and military authorities are under no illusion as to the immense strategical advantages which the Washington agreement has conferred upon the island Empire. The compact maintaining the status quo with regard to Pacific fortifications has more than recompensed Japan for the reduction of her battle fleet by making her practically invulnerable to direct attack. That agreement alone has rendered her more secure than the complete fulfilment of the "eight-eight" Dreadnaught program would have done, while at the same time she has saved well over 100 million sterling in building costs, to say nothing of the heavy outlay on new docks and other incidentals that would have been necessitated by the execution of the program. The statement that she has given all and gained nothing by the Washington treaties is, therefore, quite untrue. Nor can the assertion that she has gone further than any Power in carrying out the Washington decrees be allowed to pass unchallenged. So far not one of her effective ships condemned under the Limitation Treaty has been scrapped, or even dismantled. It is true that a few of the oldest pre-Dreadnaughts have been broken up, and that the *Kashima, Ikoma*, and *Kaurama* have had their turrets removed; but all these vessels absolete, must soon have been discarded in the ordinary course of events. The new battleships *Kaga* and *Tosa*, launched in 1921, are to be used as targets and then broken up—but only if the treaty comes into force. Not a plate has been removed from them as yet. In other words, Japan is following precisely the same policy as the United States in declining to anticipate the naval clauses of the Washington agreement. Great Britain alone has taken that step, and precious little credit she has got for it up to now.—Hector C. Bywater in *Naval and Military Record*, 27 December, 1922.

## UNITED STATES

TENTATIVE PLANS FOR WAR COLLEGE COURSES.—Following a conference called on December 14 by Assistant Secretary Roosevelt of the ranking officers of the Navy, a tentative plan has been drawn up.

The proposed plan which may be slightly revised after it has been studied by the other officers who participated in the conference before it is finally approved by the department is as follows:

1. Retention of the present War College at Newport. Admission to it shall be selective, governed by the fitness of an officer to attend the course. This fitness will be determined by appropriate entries on the officer's record made by the reporting senior. Eligibility to attend shall begin with the upper half of commanders.

2. The course at the War College shall be a one-year's course for the majority of those attending, with, however, a two-years' class selected from the most promising of the officers taking the one-year course. The work of the second year will embrace the problems of the higher commands.

3. A school for the training of junior officers in the principles of strategy and tactics and the essential problems learned at a staff college; this school to be under the superintendence of the President of the War College. This is to be known as the Junior College and the course will be one year. Admission will not be selective but shall be limited in general to officers between the upper half of the lieutenant's list and the lower half of the commander's list, inclusive.

4. At every shore station where there are a considerable number of officers assembled, schools for the training of such officers as desire to make use of them. These should be along the lines indicated for the Junior College but entirely on a voluntary basis.

5. Continuation of the present correspondence school emenating from the War College as it is being conducted, making it available for any officer, ashore or afloat, who desires to take it.

6. The school of the Fleet for the purpose of giving instruction to each officer in the elementary principles of strategy and tactics which should be considered as a part of the regular routine work of each major unit of the fleet. This work to be under one competent officer in each ship and supervised by the fleet tactical officer.

7. Establishment of a Fleet School at home bases where forces of the fleet assemble periodically or are regularly stationed as at San Diego or Charleston. These schools would serve the purpose of instructing all officers of the force, particularly in the problems relating to the force and also in those joint fleet problems relating to the methods of war afloat. They should be available to all officers of the fleet through proper interchange.

8. When opportunity presents itself for the commander-in-chief, through appropriate officers, to indoctrinate, in conferences, such officers of his force as he deems desirable, with his views, his estimates, his decisions and his critiques of the fleet maneuvers conducted.

9. That the Naval War College and the Army War College maintain close touch and intimate co-operation. To this end a reasonable number of naval and army officers should be assigned to the other college. The establishment of a limited naval course at the Army College and a similar war course at the Naval College, under interchange instructors, is also recommended.—Abstracts from M. H. McIntyre in the *Providence Journal*, 21 January, 1923.

WANTS MARINES TO STAY.—Managua, Nicaragua, December 20—President Diego Manuel Chamorro in his annual message to Congress, supports the Central American conference at Washington as a means toward peace and prosperity. He favors continuance of the legation guard of American Marines, which, he says, remains with the consent of the Nicaraguan Government and is in no way connected with the civil and political life of the country.

The president commends American co-operation in the financial rehabilitation of Nicaragua, strongly refuting charges that it tends toward intervention in the sovereignty of the country.—*Boston Evening Transcript*, 20 December, 1922.

ARGENTINE OBJECTS TO BRAZIL NAVAL MISSION.—*La Prensa*, one of the leading South American newspapers published in Buenos Aires, takes exception in a recent editorial to the action of the United States in sending a naval mission to Brazil. The paper declares that the mission being sent and officially recognized by the United States, serves a notice to the South Americans, especially the Plate republics, that Brazil has the support of the United States in her military policies. The publication also asserts that Brazil is preparing for a future offensive or defensive movement.

The paper stresses the fact that Captain Vogelgesang is in command and that he previously accompanied a diplomatic mission to Brazil, referring to the recent visit of courtesy made by Secretary Hughes to the international exposition. *La Prensa* says that the United States cannot be ignorant of Brazil's published program, which includes the acquisition of large naval units, the construction of five military bases and other preparations, nearly all of which are along the Argentine and Uruguayan frontiers.—*The Naval Monthly*, January, 1923.

AMERICA'S OUTPOST IN THE PACIFIC.—A broad-gauged and scientific policy for the development and maintenance of shore establishments for the American Navy has been submitted to Secretary Denby by the special board headed by Rear Admiral Hugh Rodman, ranking American flag officer in the North Sea during the World War, appointed last fall to determine what naval bases, yards and stations are necessary to the maintenance of the efficiency of the fleet and its operation in peace and war.

The general plan of shore establishment recommended by the Rodman board contemplates six primary bases for the use of the fleet, two of which would be advance bases in the Hawaiian Islands and the Canal Zone, the development of secondary bases at San Diego, in Alaska, the Eastern West Indies, the Key West region, the Boston-Portsmouth region and at Charleston, and lays down a definite and stable policy with respect to the retention or abandonment of navy yards, air and radio stations and other naval shore activities.

In regard to the Hawaiian Islands the Board says an advanced base should be developed on Oahu capable of serving the entire fleet to the maximum, subject only to the natural limitations imposed by the size and character of this island. This project will necessitate the development of Oahu Island to the maximum and probably the dredging of Kaneohe Bay, as Pearl Harbor alone is not adequate to serve as a Pacific advanced fleet base, and the use of any other anchorage in the Hawaiian Islands in war is open to grave objections. This advanced base should have priority of development over the fleet bases.

By the joint development of Pearl Harbor, Honolulu Harbor and Kaneohe Bay there could easily be developed in Hawaii facilities for a fleet of a thousand vessels. As the "cross-roads of the Pacific," experts are agreed the United States should lose no time in exploiting its possibilities to the limit. Oahu, besides being an impregnable Navy base, could become the principal garrison of the United States Army, with a permanent force of 25,000 troops. Their function exclusively would be to serve as the defenders of the fortress in case of an attack requiring close-range fighting. Their numerical strength, of course, always would be too insignificant to count as an expeditionary force for offensive operations further afield.

### Would Defend Pacific Coast

Oahu's chief bulwark would be its fortifications, its long-range guns, its mined approaches and it floating strength in the form of warships of all types. With a supplementary equipment of aircraft it would completely fulfill its two basic purposes—to hold at bay assailants who came by sea or air to attack the western coast of the United States, and to be a sally port for American forces.

At Pearl Harbor there now are a naval station, a one thousand-foot dry dock and repair facilities for ships of the largest size. To carry out the Oahu scheme there will need to be considerably more extensive berthing space, shop, warehouse, and storage facilities and extensive dredging operations. Oahu could be converted into a vast coaling station and contain immense oil reservoirs for the fueling of American merchant ships plying Pacific trade routes or crossing that ocean to or from the Panama Canal

As a half-way house (2,100 miles from San Francisco and 3,500 from the Philippines) Oahu is ideally situated for the purposes of an international fuel depôt. If ships of the American merchant fleet or other marines can refill coal bunkers or oil tanks at our Hawaiian base, each and every one of those vessels can carry correspondingly heavier cargoes, using for them space otherwise needed for fuel.

In the Canal Zone an advanced base for repair and supply of vessels in transit, utilizing Canal Zone facilities as far as possible; a submarine and aviation base should be developed. In this connection it should be borne in mind that in the future the Canal Zone may play a part only slightly, if any, inferior to that of our main bases. For this reason the development of the Canal Zone as an advanced base must be considered as a naval base development project of the future. This advanced base takes priority for development after the four main bases.

### Proposes Station at Alameda

Secretary Denby instructed the board to report also what additional stations might be necessary for the effective operations of the fleet in peace and in war. The only additional station recommended which falls completely within this description is the proposed naval base at Alameda, on San Francisco Bay.

"The base at Alameda," the Board states, "when supplemented by all other existing naval activities in San Francisco Bay, including the Navy Yard at Mare Island, should be capable of serving the entire fleet in all respects. Land in addition to the Alameda site will have to be acquired on San Francisco Bay for a mine base. The Board's recommendation that a marine storehouse be built in San Francisco contemplates that Government-owned land is available for a site."

The Rodman board urges that at least two adequate fleet bases should be maintained on each coast. Its survey of the situation has resulted in the recommendation that on the Atlantic Coast one of these fleet bases should be established in Chesapeake Bay and the other in the New York-Narragansett region. San Francisco Bay and Puget Sound are recommended as the ideal locations for the primary fleet bases on the Pacific Coast.

### Naval Policy Study

American naval policy as determined by national policy was studied by the Rodman Board, which recognized that on the naval policy of the Government depended the size, composition and purpose of the naval establishment and its proposed utilization in peace and war, together with the merchant marine in war. Consideration also was given to the size, com-

position and proposed use of the naval forces in war and the organization, allocation and operation of the fleet in peace.

"The shore establishment for the service of the fleet," the board reported, "and its existence and efficient operation are essential to the very being of the fleet, both in war and in insuring material readiness in peace. War on the sea is conducted by floating naval forces, but they draw their sustenance from bases. The periodic return of units of the fleet to the bases is inevitable, the service rendered by the bases must be highly efficient, as the issue of the sea campaign may depend upon the complete readiness of the fleet to keep the sea."

Considering the general principles underlying the selection of sites for naval bases and stations and their missions, which rarely change, the board emphasized the fact that new international situations do change naval strategy and policy, and declared such changes require corresponding changes in locations and mission of naval bases if maximum efficiency was demanded.

### Lays Down General Lines

The Rodman Board lays down the following broad lines of policy for naval shore establishments:

"The location and mission of naval stations and the necessity for the establishment of new naval stations are dependent upon considerations of strategy, which are in turn, dependent upon existing naval stations, and should be abandoned until the application of this policy shows that it will not contribute in peace or in war to the maintenance of the efficiency of the fleet or its effective operation.

"As the successful operation of the fleet is dependent upon adequate shore bases and stations, the development of which is second in importance only to the development of the fleet, the development of the shore establishments must be carried out on a definite program to complete all essential bases and stations in a given number of years.

"In time of peace the stations of the shore establishment should be maintained on an operating basis only to the extent necessary to support the fleet in those necessary naval operations conducted alike in peace or war. The stations that are reduced in activity or made inoperative must be maintained in condition quickly to be made fully operative in time of impending hostilities."

Primary consideration was given by the board to the subject of the main fleet bases to be operated.

"The problem confronting the board in making recommendations as to such bases would have been greatly simplified," it says, "if it were possible to create the ideal condition of having at least two adequate fleet bases on each coast, namely the New York-Narragansett Bay region and Chesapeake Bay on the Atlantic, and San Francisco Bay and Puget Sound on the Pacific, with advanced bases in the Canal Zone and Hawaiian Islands, and to concentrate naval shore establishments in and around these waters.

"The general policy followed at the time when most yards and stations were established was one of coast or local defense, so that more navy yards have been established than are required for fleet bases, and some are in places not adapted for development into bases. The board, realizing the fact that the ideal condition does not obtain, must accordingly make its recommendations to utilize the yards and stations now in existence to the best, advantage from the standpoint of utility and economy, and having in mind always the general policies hereinbefore laid down."

The board, therefore, recommended the development of bases, arranged in the order in which they should be developed as follows:

"San Francisco Bay—A base capable of serving the entire fleet in all respects. To include all existing naval activities in San Francisco Bay and its tributaries. The board concurs in the recommendations of the Helm Commission in reference to Mare Island, except the establishment of submarine and aviation bases there, and also the recommendation of the Ball Committee, particularly in reference to the establishment of a naval base on San Francisco Bay at Alameda. The board believes that this latter is imperative.

"Puget Sound—A base capable of serving the entire fleet in all respects. To include all naval stations in the Puget Sound region."

### Would Dredge Hell Gate

"New York-Narragansett Bay region—A base capable of serving the entire fleet in all respects. To include all stations now located in New York Harbor, Long Island Sound and Narragansett Bay. To make this base effective, Hell Gate must be dredged to permit the ready passage of the largest vessels from Long Island Sound to New York Harbor.

"Chesapeake Bay—A base capable of serving the entire fleet in all respects. To include all stations now located in Lower Chesapeake Bay and its tributaries.

"The development of the other fleet bases, advanced bases and secondary bases will, in some instances, probably involve the acquisition of additional property or other extensive development work, such as the dredging of Hell Gate, which is recommended as a part of the development of the New York-Narragansett Bay base. The development of this base will also necessitate the acquisition of wharfage facilities for the naval supply depot, South Brooklyn, and of a site for an air station if Rockaway Beach cannot be retained."

Most of the navy yards are included in the bases recommended by the board. Of the other yards and stations the report favors the retention of those at Philadelphia, New Orleans, Washington, Newport, Guantanamo Bay, St. Thomas and Culebra.

### Order of Reductions, if Necessary

The order, by groups, in which it is recommended that navy yards and stations should be reduced in activity or made inoperative, should conditions of economy require such action, based on conditions as they exist today, is as follows:

Group 1—Key West Naval Station; New Orleans Naval Station.

Group 2—Boston, Charleston and Portsmouth Navy Yards.

Group 3—Philadelphia, Navy Yard.

Group 4—Mare Island, New York, Norfolk, Pearl Harbor and Puget Sound Navy Yards.

The report recommends that the four main and two advanced fleet bases, besides facilities for operation and maintenance of destroyers, should have special facilities for serving submarines. It suggests the sale of the submarine base at Squantum, Mass.

The board recommends retention of the naval air station at New York, saying that if the present site at Rockaway Beach cannot be kept a new site should be provided.

### To Retain Radio Stations

Important recommendations are made with regard to naval radio stations, most of which are to be retained, although the abandonment or transfer of twenty is recommended.

The naval radio station is declared to be an integral part of the navy, which must be maintained and operated during peace in such a way as to be of the greatest value in time of national emergency.

Concerning radio compass stations, the report says their utility to commerce demands that they be established "at all important seaports as well as at points of importance solely to the fleet."

"The development of radio telegraphy is so rapid and the administrative considerations which govern the operative status of present stations and the creation of new stations are subject to such frequent change," says the report, "that the board makes no recommendation as to reducing the operative status of any existing station or the development of new stations. However, there are some stations which are not considered necessary, and which should be abandoned. All other radio stations should be retained."

The Board considers that three training stations, one on the Atlantic, one on the Pacific and one on the Great Lakes—are necessary. It recommends that training activities on the Atlantic coast be centered at the Newport Naval Training Station and that the training station at the Hampton Roads naval operating base be closed.

The Board recommends that the torpedo station, Alexandria, Va., be continued for the present, but ultimately transferred to the torpedo station at Newport, R. I., and that the temporary torpedo depot at San Pedro be moved to San Diego. It finds all other torpedo depots necessary.—*Boston Transcript,* 20 January, 1923.

## MERCHANT MARINE

SUBSIDY BILL LAID ASIDE.—The ship subsidy bill was temporarily laid aside in the Senate last Friday to allow consideration of the naval appropriation bill. On the two days preceding Senators Harrison of Mississippi and Dial of South Carolina spoke against the bill, while Senator Calder of New York earnestly advocated its passage. In the course of his long address he reviewed the history of the merchant marine of the United States from the earliest days until the entrance of the nation into the World War and the resultant ship construction program.

Discussing the value of a merchant marine as a naval auxiliary, Senator Calder pointed out that Great Britain's merchant fleet contains 194 vessels capable of a speed of over fifteen knots, while the fleet of this country contains only fifty such vessels. These vessels, he pointed out, are the "second line of defense" and give Great Britain the naval supremacy over this country in a four to one ratio.

The subsidy bill remains the unfinished business before the Senate. Senator Jones of Washington, who is in charge of the measure, has announced, however, that he would move to lay it aside and take up rural credits legislation as soon as a bill providing for the relief of the farmers is reported to the Senate from the Committee on Banking and Currency.—*Nautical Gazette,* 30 December, 1922.

REVISION OF NAVIGATION LAWS URGENTLY NEEDED.—According to Secretary of Commerce Hoover, the result of the attempted revision and codification of the navigation laws of the United States undertaken by the Shipping Board in conjunction with the Department of Commerce will be laid before Congress during its present session. They include a marked simplification of the administration and supervisory work of Government agencies in charge of shipping.

Of the need of such revision Commissioner of Navigation Carson says in his report for the fiscal year 1921-22 that at present there is scattered throughout the Treasury, War, and Commerce Departments the administration of laws having to do directly with the movement of our merchant

fleet and safeguarding the lives of thousands on board those vessels. This results in an unnecessary duplication of the floating equipment and officers of the Federal Government with the necessary duplication of expenditures.

During a recent investigation of the conditions in the harbor at New York it was found that the Coast Guard service was operating six small vessels in those waters enforcing the anchorage regulations, boarding of vessels, and to some extent enforcing the navigation laws. The supervisor of the harbor, acting under the Secretary of War, was employing six vessels of a similar size in the enforcement of the dumping regulations. The Public Health Service was operating four vessels of a similar size in connection with the quarantine station at Rosebank, one of them being a fumigating vessel. The cost of the above services aggregates approximately $270,000.

In addition to the above, this bureau has stationed at New York during the greater portion of the year a small motor boat engaged in the enforcement of the navigation laws at an expense of approximately $15,000. The work performed by the above services having to do almost exclusively with the merchant marine, obviously should be under the direction of one department.—*Nautical Gazette*, 23 December, 1922.

FRENCH MOTOR-SHIP OF 22,000 TONS.—A merchant ship for the French Merchant Marine is being constructed at the yards of Fairfield Shipbuilding and Engine Company, Glascow, Scotland.

Dimensions of ship

| | |
|---|---|
| Displacement tonnage | 22,000 |
| Length | 184 metres 61 |
| Beam | 22 metres 15 |

Engine Installation

| | |
|---|---|
| Diesel motors | 2 cycle |
| Type—Marin Sulzer | 12,000 h.p. (total power) |

Various Details of Engines

| | |
|---|---|
| Number of motors | 4 |
| Power (each one) | 3,000 h.p. effective |
| Bore of cylinder | 70 cm. |
| Stroke | 98 cm. |
| R.P.M. | 130 |
| Number of cylinders par motor | 6 |

Consummation of fuel oil per h.p. per hour 185 grammes. The scavanging is done by Turbo blowers.—*Press Reports.*

## ENGINEERING

THE THEORY OF LUBRICATION.—General reasoning is so often at fault as almost to justify the conclusion that general reasoning is generally wrong. * * * Some engineers, after a cursory study of Osborne Reynolds' theory of lubrication, decided from general reasoning that the conditions on which is was founded were seldom realized in practice, basing their conclusions largely on the circumstance that, according to Reynolds' theory, the frictional resistance developed depended on the viscosity of the lubricant, whilst practical experience showed that the actual coefficient of friction, even in a fully-lubricated bearing, was nearly the same whatever the lubricant used.

The fallacy of this argument was very thoroughly exposed in the able and interesting Thomas Hawksley lecture delivered to the Institution of Mechanical Engineers last Friday evening by Dr. Stanton, of the National

Physical Laboratory. What Reynolds' critics had overlooked was that, according to the theory, the friction of a bearing, was also a function of the thickness of the oil film, and, with stated conditions of load and speed, this thickness was less the less the viscosity of the lubricant. Dr. Stanton gave in his lecture the results of a calculation of the frictional resistance of a bearing run at the same load and at the same speed with different lubricants. When the viscosity of the lubricant was 0.233 the calculated coefficient of friction came out as 0.00094, whilst when the viscosity was 0.824, or nearly fourfold, the coefficient of friction was 0.00099, or only some five per cent more.

The very careful and ingenious experiments described in the lecture very thoroughly vindicate the wide applicability of Osborne Reynolds' theory, but at the same time thoroughly substantiate the objections raised to the policy of the Committee on Lubricants in attempting to experiment on an ordinary journal bearing. It appears from the lecture that all the troubles anticipated by the opponents of this course were encountered, and that it was impossible to obtain figures sufficiently accurate for a comparison with theory, until the attempt to reproduce practical conditions was abandoned, and in the end it was found expedient to make the bush six per cent larger than the journal, so that the effective bearing area subtended but some twenty degrees.

* * * * *

On this head much misapprehension prevails. Some engineers have got obsessed with the idea that for lubrication to be effected on Osborne Reynolds' principle it is necessary for oil to be "dragged in" between the opposing surfaces. As a matter of fact the oil pressure that keeps the surfaces apart is due to the objection of the oil to be extruded from between them, and hence, if a cylinder rolls over an oil covered plane, lubrication is effected on Osborne Reynolds' principle just as much as it is in the case of a journal, although there is no "dragging in" of the oil. In short, the oil film is already there, and before it can be extruded the cylinder has rolled on a point where the film retains its original thickness.

In Dr. Stanton's experiments the maximum pressure observed amounted to about three and one-half tons per square inch, the lubricant being castor oil, and the least thickness of the oil film was found to be 0.000046 in. It is interesting to compare these figures with the corresponding values for the film between the teeth of marine reduction gears, as determined by calculation and tabulated on page 453 of our issue of October 15 last. In the case of the S.S. *Melmore Head* the computed thickness of the oil film was 0.000035 in., and the maximum pressure in the film 23,100 lbs, per square inch. In general, however, the average film thickness turns out to be somewhat greater than that found in the Teddington experiments which is in part due to the better lubrication due to the rolling motion, although the "effective" curvature of the opposing surfaces is also a factor in the problem, as is also the relative speed.

The high pressures at Teddington were obtained with castor oil and with heavy cylinder oil. When the attempt was made to carry the same load with lighter oils, such as sperm, the vibration became so great that the experiment had to be abandoned for fear that "seizing" might occur and the bearing be spoiled. The exact converse of this is reported to have occurred with certain high-speed bearings of large diameter, in which the surface speed was of the order of 100 ft. per second, and the clearance between brass and journal 4 mils per inch. In this case it is stated that heavy vibration occurred until the oil warmed up, thereby reducing its viscosity. On this condition being attained the bearing ran steadily and quietly. Unfortunately, complete data are not available, and it is not clear whether the vibrations were encountered merely in running up to speed

or continued afterwards. If the first-named hypothesis be correct, the explanation may possibly be found in the fact that, with a bearing at rest, the least distance between brass and journal is at the bottom of the brass, but in the stable running position the point of closest contact lies to the trailing side of the brass, and to attain to this position it is necessary for the shaft to be lifted. This operation does not in all cases appear to be effected quietly as the shaft after beginning to lift, sometimes slips back again, and it is only after a certain speed is attained that quiet running is achieved. It is at least conceivable that the vibrations noted, when it was attempted to run the Teddington bearing with light oils and heavy loads had a similar origin, but other explanations are certainly possible.

One very important observation at the National Physical Laboratory was that, provided the journal was run up to speed before the load came on, there was no wear of the brass, the two solid surfaces being completely separated by the film of oil. Another highly important conclusion reached was that "seizing" might occur whilst the oil film was still very many molecules thick. This observation accords very well with the view repeatedly advanced in these columns: viz., that lubrication fails and a bearing seizes, when the shear stress on the oil exceeds a certain limit, which depends on the physical properties of the oil and of the bearing metal. In order that oil may be dragged in between the opposing surfaces it must adhere to them, but the strength of the bond will vary with the lubricant and with the metal. Should the shearing forces developed in the film exceed the strength of this bond slip will occur and, the pressure being no longer maintained, the opposing surfaces will come into contact and "seizing" occur. A rise of temperature may be expected to weaken the bond and to promote "seizing," the more specially as at the same time the viscosity of the lubricant will be diminished, thus thinning the film and increasing the shear stress. On this view the superiority as lubricants of animal and vegetable oils lies in the fact that they form a stronger bond with the bearing metal than do the mineral oils, a fact which Mr. R. M. Dally appears to have been the first to observe.—*Engineering*, 8 December, 1922.

LEAKS, caused by corrosion, in a large water main in America were stopped by electric welding without cutting off the water, which had a pressure of 90 lb. per square inch. The process, described in the *Engineering News-Record*, was as follows: Where a hole in the pipe was discovered the flow of water was stopped with a pine plug. The plug was then cut off flush with the surface of the pipe and covered with a metal cap held fast by tacking it on the side with an electric arc. The cap used was of metal of approximately a No. 11 gauge and was slightly concave. Over this cap metal was welded, extending far enough to get a firm hold on the pipe.—*The Engineer*, 8 December, 1922.

ELECTRICAL INSTRUMENT APPLIED TO MEASUREMENT OF FLUIDS.—In measuring the flow of steam or other fluids, the application of electricity has been in use a number of years and its advantages are well recognized. The one apparent objection to electrically operated flow meters has been the error due to fluctuations in the voltage of the lines from which they are operated. Where the voltage varies uniformly over a moderate range —for instance, from 108 to 112 volts—the electrical instruments can be set for a mean value, say 110 volts, and the average result over a period of time will be sufficiently accurate for practical purposes.

However, in many cases it is impossible to obtain an average voltage with sufficient accuracy, owing to poor voltage regulation or other conditions not under control. It is for this latter group primarily that the writer has developed an electrical integrating instrument that is practically

free from voltage error. This instrument is as simple as the ordinary alternating-current watt-hour meter and equally dependable, if not less likely to get out of adjustment.

The instrument is not a watt-hour meter, neither is it an ampere-hour meter. Considered as an electrical instrument, it sums up, or integrates, the conductance—that is, the reciprocal of the resistance—of a circuit with respect to time, and therefore might be called an integrating "mho-meter." When used in connection with a device by which the electrical conductance increases (and the resistance decreases) as the rate of flow of a fluid increases, the instrument becomes a fluid flow integrator or totalizer.

Without using mathematical equations, the elementary principles of this instrument may be set forth and its chief characteristics explained by refer-

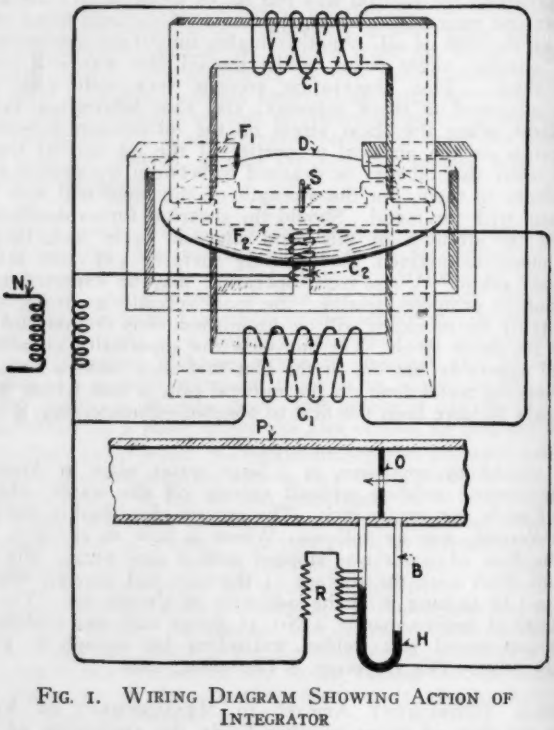



FIG. 1. WIRING DIAGRAM SHOWING ACTION OF INTEGRATOR

ence to the diagrammatic drawing, Fig. 1, and to other instruments whose principles are well known. In the diagram an aluminum disk $D$ mounted on the shaft $S$ rotates in the air gaps of two pairs of electromagnets having the winding $C_1$ and $C_2$, respectively. The coils $C_1$ are connected in series with each other and across the secondary of the transformer $N$. The coil $C_2$ is connected in series with the resistance $R$, the two being across the secondary of the transformer in parallel with the coils $C_1$.

Pipe $P$ carries the steam or other fluid to be measured and the orifice $O$ causes a pressure drop, or differential pressure, between the two sides of the orifice. The differential pressure raises the mercury in the U-tube $B$, the mercury thus short-circuiting more or less of the resistance $R$. By

construction, the resistance of the circuit through $C_2$ and $R$ can be made to vary inversely (and the conductance directly) as the rate of flow of a fluid at constant density.

The coils $C_1$ contain a large number of turns and are highly inductive, for which reason the lag of the current behind the voltage approaches ninety degrees. The coil $C_2$, however, has a smaller effective number of turns, and being in series with the resistance $R$, which is large in proportion to the inductive reactance of the coil, the inductive effect of $C_2$ is practically negligible and the current is nearly in phase with the voltage. Since the currents in these two coils have a large and practically constant phase difference, the corresponding magnetic fluxes of $F_1$, and $F_2$ react on currents induced in the disk to produce a torque thereon in a manner similar to that of the ordinary induction-type watt-hour meter. This accelerating, or driving, torque varies as the product of these two fluxes, a relation well known and used in all induction-type meters. A change in frequency may tend to modify the torque, but this tendency has been rendered negligible for the usual frequency fluctuations by incorporating in the meter, as manufactured, special features not here shown without in any way departing from the fundamental principles under discussion.

As the disk rotates under the action of the driving torque, it cuts across the fluxes of $F_1$ and $F_2$ and by this movement has currents induced in it which oppose the motion and thereby give a retarding, or dragging torque. This action is similar to that in a watt-hour meter where one or more permanent magnets, sometimes called drag or damping magnets, provide the retarding torque. By construction the flux of $F_1$ is made so large in comparison with the flux of $F_2$, that the retardation is due almost entirely to the flux $F_1$. Thus the electromagnet with the windings $C_1$ functions in a manner similar to the permanent magnets of a watt-hour meter in giving the retarding torque and at the same time does its part in producing the accelerating torque. This retarding action varies directly as the speed of the disk and as the square of the flux and therefore as their product, a relation applying to the permanent magnets of watt-hour meters or to any magnet whose flux is cut by a conductor forming a closed circuit.

Referring again to the relation that the driving torque varies as the product of the two fluxes of $F_1$ and $F_2$, it will be seen that, for any fixed value of $R$, $F_1$ and $F_2$, will each vary directly with the voltage from the transformer $N$. Hence the accelerating torque varies practically directly as the square of this voltage. It also follows that the retarding torque, since it varies as the square of the flux $F_1$, likewise varies as the square of the voltage. Neglecting friction on the disk, which is very slight, the speed will take such a value that the accelerating and the retarding torques will be equal and opposite; and since each varies practically in the same way with the voltage, ordinary fluctuations of voltage will have substantially no effect on the speed of the disk. This is a condition desired, for the reason that the velocity of the fluid in the pipe $P$ has no connection with changes in voltage of the transformer $N$.

By construction, as previously mentioned, the resistance $R$ is made to vary inversely, and the conductance of the circuit directly, as the rate of flow of the fluid to be measured. But the current in the coil $C_2$, and hence the flux of $F_2$, varies directly as the conductance and therefore directly as the rate of flow of the fluid. The driving torque increases as the flux of $F_2$, increases, hence the speed of the disk will be proportional to the velocity of the liquid through the orifice. Any changes in $F_2$, caused by fluctuations in voltage will be accompanied by corresponding changes in $F_1$ so that the accelerating and the retarding torques will be equally affected and the speed of the disk will vary only with the rate of flow of the fluid.

Obviously, if the speed is proportional to the rate of flow, the total number of revolutions of the disk is a measure of the total quantity of the fluid passing through the orifice. These revolutions are counted by the usual gear trains with dials, so that the dial indications give a direct summation or integration of the total flow in any desired units.

This integrating instrument has been adopted by the Republic Flow Meters Company, of Chicago, and is now standard equipment, replacing the type formerly used.—E. H. Freeman in *Power*, 26 December, 1922.

NEW BRITISH MAGNETO.—This new magneto is dust-proof and watertight with the extremely light weight of six and a half pounds in which the magnet, not the armature, rotates. Special fan-shaped stationary pole shoes are used with the construction of the rotor shoes achieving an effective lamination of the magnetic structure which is superior to the best rotating armature construction. This arrangement is supposed to account for the excellent starting characteristics of the new machine and the greater range of speed than called for in service. The firing is claimed to be effective at such slow crank shaft speeds as fifty to sixty revolutions per minute at which speeds effective carburation is not achieved. The use of the stationary armature enables a thorough provision for insulation and the elimination of such evils as rotating high tension winding condenser connections.—*Tech. Engineering News*, January, 1923.

THE DISCHARGE OF OIL FROM SHIPS.—From Monday of this week henceforward, it will be an offense for a ship to discharge oil, or allow it to escape, into the sea within a distance of three miles from the British coast. The Act of Parliament under which such a proceeding has been made punishable with a fine of £100, should serve to remove a just cause of grievance expressed by many visitors to and users of our seashores, for within recent years great discomfort and damage have been caused to many interests by the oily scum or tarry matter which has been washed landwards from ships using oil fuel when cleaning their bunkers or replacing their ballast water. The Act applies not only to ships, but to the discharge or escape of oil from any place on land or from any apparatus used for transferring oil to or from a ship, and definitely forbids its transference during the night time. From our own experience, we know of two places at which the trouble now guarded against has reached acute conditions. At one the oily drift has practically eliminated all off-shore fishing, and at the other the tar deposit has rendered the beach almost useless for pleasure purposes.—*The Engineer*, 5 January, 1923.

THE CONTRA PROPELLER.—This article forms a very comprehensive treatment of the development, recent experience with, and technique of the contra propeller. The pre-war development was restricted to the early work of Dr. Wagner, who in 1912 published the results of trials on a German torpedo boat in which, at a speed of 28 knots, a saving of twelve per cent in power was effected by the introduction of the contra propellers. The war interrupted the development, but since the war considerable progress has been made. Savings of power ranging from ten to twenty per cent have been repeatedly proved on service, and many complete details of actual trial data are given. In the *Stecknitz*, belonging to the Norddeutscher Lloyd, carefully carried out trials were made in the spring of 1920. First the vessel was tried with its old propeller; next, as this propeller was inefficient, a new propeller was fitted with a resultant saving of power of seven to eight per cent. Then the guide blades were attached and the result was a further saving of fifteen per cent. Trials on the Brevik mile of the Norwegian vessel *Hovmøy* of 1,300 tons d.w. carried out under the technical superintendence of Professor Mørch of Trondhjem

University, showed the astonishing saving of seventeen and two-tenths per cent. The Norwegian steamer *Granit*, of 1,000 tons d.w., showed a saving of fifteen to sixteen per cent. The case of the Norwegian passenger vessel *Brevik*, which owing to its age could not maintain its speed on service is interesting, for when fitted with the contra propeller the necessary speed was easily obtained. The Norwegian vessel *Neptun*, of 1,200 tons d.w., first had its old propeller removed and a new one installed with a resulting improvement of six to eight per cent. The fitting of the guide blades resulted in a further saving of eleven and six-tenths per cent at 11 knots and sixteen per cent at 12 knots. In the Norwegian vessels *Ottar* and *Frednes*, which were fitted with guide blades, no definite comparative trials were run, but in the case of the *Frednes* a saving of coal consumption of ten and seven-tenths has been made. In the S.S. *Eikland*, of 2,040 tons d.w., a saving of eleven and five-tenths per cent was obtained. The Hamburg Amerika liner vessel *Andalusia* showed a saving of twenty per cent over the performances of its sister ships *Alesia* and *Arabia*. Altogether eight applications of the propeller have been fitted. Fourteen vessels up to a deadweight of 8,000 tons are yet to be fitted. An objection which at first was thought to be a serious one—that of the breakage of the blades—has not proved so on service. Only in one case, that of the *Andalusia*, has a blade been broken. In this case one of the blades was severed at about its half length, but strangely enough the saving in power was not adversely effected. This accident lead to experiments being carried out on the problem at the Hamburg Experiment Tank, the results of which showed that the diameter of the guide blades could be considerably less than that of the main propeller without destroying its beneficial influence. This reduction of diameter will considerably increase the safety and strength of the guide blades. An interesting feature of the contra propeller is that it increases the maneuvring qualities of the vessel to which it is attached. In the case of the *Neptun* the tactical diameter was reduced to five-eighths of its former value. Detail plans of actual contra propellers are given with the articles, and their routine construction is carefully gone into. The final portion of the article is devoted to the theory of the contra propeller, and the treatment, based upon the latest and most reliable theories, shows that the savings which have been realized in practice are of the order which theoretical investigation leads one to expect.—*W. Kucharski, Werft Reederei Hafen*, November 22, 1922, p. 715; 18 pp.; 18ff.—Abstracted for the *Marine Engineer* and *Naval Architect*, January, 1923.

## AERONAUTICS

STRENGTH OF AIRCRAFT SQUADRONS—According to a recent weekly operations report of Naval Aviation the Aircraft Squadrons attached to the Battle Fleet had the following number of planes in active commission:

*Observation Plane Squadron 1*—Five *Vought* and three *DH4B*.

*Observation Plane Squadron 2*—Six *DH4B*. (Six *Vought VE7SF* planes in commission for training.)

*Fighting Plane Squadron 1*—Three *VE7SF*, one *VE7T*, one *VE7GF* and one *JN4H*.

*Fighting Plane Squadron 2*—Five *JN4H*.

*Torpedo and Bombing Plane Squadron 2*—Six *F5L* and two *N9*. (Two *F5L* for replacement.)

*The* Aircraft Squadrons, Scouting Fleet, consist of Scouting Plane Squadron 1 (*F5L* planes), Torpedo and Bombing Plane Squadron 1 and Kite Balloon Squadron 1.—*Aviation*, 25 December, 1922.

EUROPEAN AIR STRENGTH.—The present relative strengths of the air forces of this country, France and Belgium, now stationed in Europe,

have been revealed in a written reply supplied by the Secretary for Air to Lieutenant Commander Kenworthy. It appears that while we have serving in Europe, fifteen squadrons of twelve machines each, France has 100 squadrons of nine machines, and Belgium fourteen of ten machines each. Our total active service strength is thirty-two squadrons, as compared with 128 for France and fourteen for Belgium. The *personnel* of the Royal Air Force serving in Europe includes 1,158 trained pilots, seventy-five observers and 19,421 other ranks engaged on ground duties. France has made provision for maintaining in Europe 3,039 flying officers and 30,477 other ranks. Information is not available as to how the first of these figures is divisible as between pilots and observers, while in the case of the second the figure excludes a large number of those engaged on ground duties who are obtained from the army. The Belgian total establishment is 2,000 of all ranks, but reorganization is now being undertaken. In the course of a reply to Major Attlee, the Minister stated that the number of machines on the French Civil Register on December 1 was 660, and that during the first eleven months of this year the French aircraft industry had produced 3,300 machines for civil or military purposes, including those exported to foreign countries.—*The Engineer,* 29 December, 1922.

PILOTLESS PLANE SAFE FROM ENEMY CONTROL.—Pilotless bomb-carrying airplanes controlled by wireless will be the most dangerous weapon in future wars, says the French inventor of wireless instruments, Branly, who insists that French apparatus has been developed to such a point already that it is impossible for enemy wireless experts to interefere with control. Not only would an enemy be obliged to know every secret wave length used, but the French controls under experiment were so delicate that special and intricate signals could be so sent as to operate directly many small parts of mechanism.

"As a result," says Branly, "the enemy would have to have full knowledge of the mechanism used, and this can be changed every time the plane leaves the aerodrome; and stolen secret codes henceforth will be useless. Of course, parasite waves could be sent out in all directions, which might make our control more difficult, but under such conditions the enemy would be interfering with his own wireless also."—*Aerial Age,* January, 1923.

SEVEN HOUR GLIDING RECORD.—Lieutenant Thoret, a French military aviator, on January 3 beat all glider records by keeping in the air 7 hr., 3 min. at Biskra, Algeria.

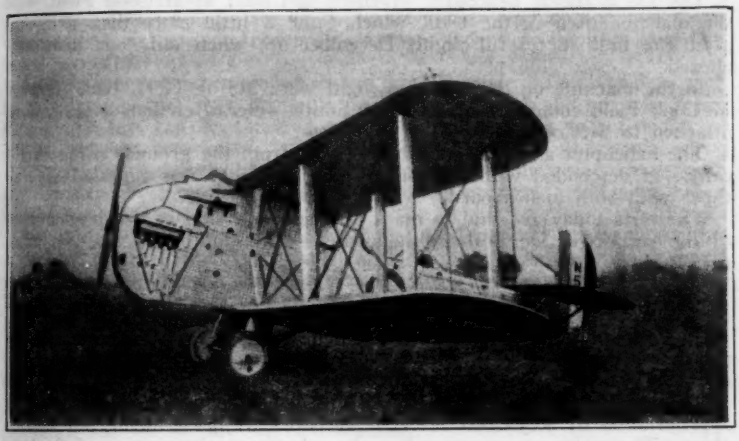
The feat was accomplished in a regulation army airplane with the propeller previously wedged to prevent its operation. In addition to its motor, gasoline, and oil supplies, the machine carried an extra weight of 500 lb. It was in no way modified for gliding.—*Aviation,* 15 January, 1923.

THE JAPANESE AIR APPROPRIATIONS.—The news item from a French contemporary that the Japanese budget for the present fiscal year includes an appropriation for military and naval aeronautics of approximately $21,000,000 is highly significant. The fact that this appropriation is seventy-six per cent of the total appropriation for the United States Army and Navy Services ($27,661,450.00) for the current fiscal year is important in itself, for it shows that the Empire of the Rising Sun has fully grasped the value of Air Power. What increases the value of this demonstration is that the Japanese naval air appropriation included in this sum is $16,000,000 as against $14,800,000 for the United States Navy.

As the naval ratio of Japan is, under the Washington treaty, sixty per cent of the American naval strength, it may be seen that Japan is spend-

ing money on her naval air force far in excess of her allotted ratio of naval strength, aiming in that service evidently at parity with that of the American Navy. This is a development which should be watched with sustained interest.—*Aviation,* 15 January, 1923.

BLACKBURN DECK-LANDING NAVAL SPOTTING MACHINE (BRITISH).—The Blackburn Aeroplane and Motor Company, Limited, of Leeds, continued during the year to devote its attention principally to naval aeroplanes of the torpedo-plane type. The firm's *Swift* type of torpedo-plane, which we illustrated in our *Annual Review* two years ago, has been supplied to all the principal foreign Governments as well as to our own Air Ministry. The firm's latest development in this direction is a large type of coastal defense torpedo-plane and bombing machine, now being built for the British Government. The machine is intended to carry and discharge a 21-in. torpedo or bombs weighing 1,800 lb. Its long sea range will permit



BLACKBURN DECK-LANDING NAVAL SPOTTING MACHINE (BRITISH)

it to work from a coastal basis. The machine will be driven by a Napier "Cub" 1,000 horsepower engine, and is claimed to be the first aeroplane specially designed from the beginning to employ that motor.

Another interesting naval machine of the Blackburn Company's production is the deck-landing reconnaissance and spotting machine of which a photograph is reproduced herewith. This machine carries a crew of four —a pilot, observer, wireless operator and gunner, and is driven by a 450 horsepower Napier "Lion" engine. The machine is designed in such a way that many of its principal elements are interchangeable with those of the firm's *Swift* torpedo-plane—also a deck-landing machine—so that the spare parts carried on board the mother ship may be reduced in variety. The interchangeable units comprise the engine and its mounting, the radiator and piping, the reserve water tank, oil tank, propeller, main planes and ailerons, tail plane and elevators, fin and rudder, tail skid and wheels. The machine is designed to take off after a run of 100 ft. on the deck of a ship moving at 20 knots. Should it be necessary to alight on the water, provision is made for dropping the landing wheels. Internal air bags are arranged to keep the machine afloat for a considerable period and slings are provided for hoisting in on board the mother ship. The pilot

sits slightly in front of the leading edge of the top plane, while the observer is stationed just aft of the trailing edge, and is sheltered from the wind—so that he may be the better able to use his field glasses, range finder or camera—by carrying the cowling over his head. The gunner's cockpit is in rear of the observer, while the wireless operator is housed between the pilot and the observer. The pilot can bring an additional gun to bear by firing it through the propeller. The wing spars and the longerons are of spruce, but elsewhere the structure is mainly in steel. The machine is designed to have a top speed of 99 knots, a landing speed of 40 knots, and a ceiling of 16,800 ft.—*The Engineer*, 5 January, 1922.

HELICOPTER MAKES FLIGHT WITH TWO MEN ON BOARD.—For what is said to be the first time in history, a two-man helicopter flight was made early at McCook Air Field.

The De Bothezat helicopter, invented and built at McCook Field, was the machine used in the tests, which came a little more than a month after the first successful flight, December 18, when only one man was aboard.

In the machine on the two-man flight were Major T. H. Bane, former McCook Field commandant, and Art Smith, veteran civilian aviator, now attached to McCook Field.

The helicopter ascended about three feet from the ground, rising vertically. It descended without trouble, and the flight was repeated several times with both men aboard.

The tests today are said to mark an important step in the development of the successful De Bothezat helicopter.—*The Baltimore Sun*, 20 January, 1923.

## ORDNANCE

TO MODERNIZE OUR BATTLESHIPS.—In order to take immediate steps to prevent our naval strength from falling behind that of other navies or dropping below the ratio established in the arms conference last year, President Harding has submitted a supplemental estimate for a special appropriation of $6,500,000 to begin the work of modernizing our battleships. The entire program involves the necessary rejuvenation of thirteen capital ships, the total cost of which will amount to $30,000,000, according to the director of the budget, whose approval was given to the estimate. Eventually this expenditure will amount to $60,000,000, in the opinion of the naval officers who are familiar with the situation.

Foremost among the work of modernizing our fleet is the increase in the range of the guns. The startling declaration has recently been published that all but five of our super-dreadnaughts are out-ranged more than 5,000 yards by practically the entire British fleet of capital ships, rendering our vessels virtually obsolete.

Other features of the program involve the conversion of six of the battleships from coal to oil burners, the protection of the decks from aerial attack by the addition of armor, and the increase in the defensive measures against mines and torpedoes. This latter feature includes the process of adding tanks or compartments to the sides of the ships to afford protection against torpedo attack from other surface vessels and from submarines. This type of construction became known as "blisters" during the war because of the warty effect the compartments lend to the dreadnaughts; they add to the fuel capacity of the oil burners, as well as give protection to the vitals of the ships from the torpedoes and mines.—*Army and Navy Register*, 9 January, 1923.

UNITED STATES FLEET BATTLE PRACTICE.—From the responses received to Secretary Denby's invitation to Congressmen to witness the maneuver of the United States in March, there will be a distinguished party. The maneuvers will come after the adjournment of Congress and will give an opportunity to the members of the Naval Affairs Committee to witness the firing upon the old battleship *Iowa*.

It is planned to get as much out of the test with the radio controlled *Iowa* as possible. In all probability the *Iowa* will be sunk in the closing phase of the test, when a fire of 14-in. guns from the *Mississippi* will be directed against it.

Using the *Iowa* as a moving target five problems will be worked out against her. The first test will be with secondary batteries of 5-in. guns, which will try out the present fire control system with a rapid change of range. The *Iowa* will be run at varying speeds while under fire and the observers can thus ascertain whether the fire control system is effective under these conditions.

The second test will be for 14-in. turret guns, in which the two ships will change their courses frequently as commanders would in a duel between two battleships.

Turret guns will be employed in the third practice. The test here will be to determine whether accuracy of fire from turrets turning from the right to left can be obtained when the enemy turns to the right or left at frequent intervals.

The fourth test will be night attack. Searchlights, star shells and other modern systems of illumination will be employed, and 5-in. rifles will be used.

In the fifth exercise 14-in. guns will be used in indirect fire upon the *Iowa*. In clear weather the range will be 25,000 yards, but in hazy weather or with a smoke screen the range will be reduced to 15,000 yards. In this maneuver aircraft will be used for observation and spotting.—*Army and Navy Journal*, 6 January, 1923.

NAVY IS EXPERIMENTING WITH PEPPERMINT OIL.—Every ship of the United States Navy afloat and every naval training station have been supplied with a certain quantity of peppermint oil by the Bureau of Ordnance for use in gas warfare training.

The idea of supplying the oil is to acquaint the personnel with the properties and use of the gas mask. When the instructions issued on the use of the oil are followed out, the oil can be detected by its odor when not wearing a gas mask, but is absorbed by the chemicals in the gas mask, so that, when wearing a gas mask, the personnel cannot detect the presence of the vapor of the oil. Similarly, it can be used to test the proper fit of the gas mask in that if a man wearing a gas mask perceives the odor of the oil there is certainly a leak in the mask.—*Boston Evening Transcript*, 5 January, 1923.

## RADIO AND NAVIGATION

RADIO BEARINGS.—The Hydrographic Office has printed on the back of North Atlantic and Central American Waters Pilot Charts for January and the North Pacific and Indian Ocean Pilot Charts for February a Radio Bearing Conversion Diagram developed by Commander F. C. Martin, U. S. Navy, of the Hydrographic Office. This diagram will also be issued as H. O. Chart No. 5193.

The purpose of this diagram is to easily convert the radio or true bearing which is received by the vessel into a mercator bearing so that it may be laid down by the navigator in the ordinary way, thus allowing him to dispense with tedious interpolations from tables or computation to

obtain this correction. The diagram gives at once without any other special facilities just what is needed, hence making any available mercator chart good for plotting of radio bearings. This renders the application of this valuable aid to navigation within the reach of all mariners regardless of whether or not they carry a specially constructed set of radio compass charts.

SONIC SURVEY. WEST COAST.—The U. S. S. *Hull* and *Corry* completed, on December 22, a sonic survey of the West Coast of the United States, from Point Descanso, Mexico, to San Francisco. Lines of soundings were run at five-mile intervals from the hundred fathom curve to the floor of the Pacific, from Point Descano to Point Conception. From Point Conception to San Francisco, the lines of soundings were at ten-mile intervals. In all 6,800 miles of soundings were taken and it is reported that several uncharted banks were discovered.

The sounding operations were conducted upon request of the Carnegie Institute of Washington to be used in connection with the Institute's study of the cause of earthquakes.

NEW NAVAL AIRCRAFT INSTRUMENTS.—The annual report of the Naval Observatory contains the following reference to new developments of aeronautical, navigational, and aerological instruments:

Two new types of aero compasses were tested in March. The Briggs-Heyl earth inductance compass was tried out in a *DH 4* plane at Anacostia and was later given a thorough test at the Naval Observatory shop and compass house. The Sperry gyro compass was tried out in an *F5L* plane and later tested at the naval air station at Anacostia. Unfortunately neither one of these compasses is yet properly developed for use in heavier-than-air machines. The Sperry gyro compass could be satisfactorily used in large airships of the *ZR* type.

The aerial sextant as designed by Lieutenant Commander Byrd is considered the best artificial horizon sextant that has been tried out. Five Navy Standard sextants fitted with Fischer artificial horizon attachment have just been received from Keuffel and Esser Company, and it is believed that these instruments will be an improvement.

The British low-reading altimeter as manufactured by Short and Mason, of London, has proved successful and is the best low-reading altimeter that we now have for issue. A temperature-compensated high-reading altimeter was developed by the Bureau of Standards. Further experiments are necessary.

Altitude azimuth instruments for observing pilot balloons have been delivered to the Observatory from three sources: Keuffel and Esser Company, E. S. Ritchie and Sons, and the Washington Navy Yard. These three types of instruments are different, though intended for the same purpose. They are being tested by the aircraft tender Wright.

Pilot balloons, 6 and 9-in. and 7½-in., as manufactured by the United States and Faultless Rubber Company, respectively, have passed excellent tests and are now being issued to the service.

A plotting board designed by Keuffel and Esser Company for plotting the positions of these pilot balloons in their ascensions is being tested at Anacostia.

A luminous-ground wind indicator, manufactured by the Air Transport Equipment Company, of Long Island, is being tested at Anacostia. This indicator is in use at McCook Field and at Hazelhurst Field.

The air stations and the U. S. S. *Wright, Aroostook,* and *Langley* have been fitted out with complete sets of aerological instruments. All twenty-four-hr. drum aerological instruments have been changed to seven-day ones.

A chapter on aerial navigation for the new book on navigation that is to be used by midshipmen was compiled by the officer in charge of the aeronautic desk at the Naval Observatory.—*Aviation,* 8 January, 1923.

WIRELESS LIGHTHOUSE DEEMED SUPERIOR TO RADIO BEACONS.—A wireless lighthouse has been installed on Inchkeith designed for use in fog. By means of reflectors wireless waves are concentrated into a beam with a radiation of about 100 miles, which revolves and in passing each point of the compass assumes a distinctive signal. The installation will be of service only to vessels equipped with wireless. For ships possessing direction-finding instruments it will be a simple matter to determine precisely their position, while other craft with wireless sets will be able to deduce their whereabouts approximately.

An apparatus twenty feet high is employed and with the reflector the diffusion of the waves is prevented. The broadcasting wave is 360 metres and it is held that the shorter the wave-length the freer it is from interference. The wireless lighthouse is considered an advance on the American system of establishing radio beacons on the Atlantic seaboard by the aid of which vessels with directional apparatus can work out their position in a fog.—*The Nautical Gazette,* 23 December, 1922.

## MISCELLANEOUS

GREAT BRITAIN AND THE NAVAL TREATY.—According to an American press dispatch imputed to the Navy Department, "the scrapping hitherto done in Great Britain has affected only vessels formerly classified as wholly obsolete." This called forth a rejoinder from the British Embassy, which said that the dispatch could hardly have come from official sources "because what is stated is contrary to facts officially known to the Washington Government."

What are the facts? Up to the present date all but one of the nineteen British dreadnaughts doomed by the treaty have been stricken off the list. Nine of them have been actually broken up or are now undergoing that process; the remaining nine have been stripped of all essential fighting gear—the turrets being removed in some cases—and will be sold for demolition as soon as purchasers can be found for them. The sole survivor of the nineteen is the *Lion,* the order to dismantle her having been suspended a few weeks back for reasons not yet officially disclosed.

Now, if the eighteen discarded ships were compared with the *Maryland* or the Japanese *Negato,* they certainly might be termed obsolete, but measured against such vessels as the *Michigan, Delaware* or the Japanese *Settsu*—none of which have yet been scrapped—they would still rank as thoroughly effective. In fact, several of them are considerably more powerful than the dreadnaughts that will remain in the American and Japanese fleets after treaty-scrapping operations are concluded. To elucidate this point further I have prepared the following short table showing the charactertistics of certain British ships already scrapped and of dreadnaughts reserved for future duty in the United States Navy.

*Some British Dreadnaughts Already Discarded*

3 *Orions*—Completed 1912, 22,500 tons, 21 knots, 10 13.5-in. guns.
1 *Erin*—Completed 1914, 23,000 tons, 21 knots, 10 13.5-in. guns.
1 *Agincourt*—Completed 1914, 27,500 tons, 22 knots, 14 12-in. guns.
1 *Princess Royal*—Completed 1912, 26,350 tons, 28 knots, 8 13.5-in. guns.

*Some United States Dreadnaughts to Be Retained in Post-Treaty Fleet.*

*Utah, Florida*—Completed 1911, 21,825 tons, 21 knots, 10 12-in. guns.
*Arkansas, Wyoming*—Completed 1912, 26,000 tons 20½ knots, 12 12-in. guns.

We therefore arrive at the cardinal fact that Britain has practically disposed of all the ships she is pledged to give up under the treaty, although that instrument is not yet operative, and that among them were half a dozen of later design and consequently greater war value than certain ships which the United States and Japan will retain in their post-treaty fleets. As this is well known to the Washington Navy Department, the British Embassy had good reason to doubt whether the department had inspired the misleading press dispatch alluded to above.

When explaining to Parliament last week the steps that have been already taken to scrap warships under the treaty, an Admiralty spokesman said that the British Government had desired to show its intention of giving a lead in the direction of naval disarmament by carrying out the spirit and letter of the treaty.

That such a desire has animated British statesmen is true enough, but candor compels the admission that motives of a slightly less exalted nature have contributed to the premature sacrifice of so many valuable ships. During 1920, when the increasing scarcity of funds made it imperative to cut down naval expenses, the Admiralty placed eleven of the earlier dreadnaughts on the "disposal list," which meant they were to be stripped and sold as opportunity offered. This was done, not because the ships were obsolete, but simply because there was no money to maintain them. These eleven vessels would therefore have been scrapped, treaty or no treaty.

On the other hand, the eight additional dreadnaughts condemned by the treaty would unquestionably have remained on the active list for years to come, seeing that they were individually more modern and powerful than several of the first-line ships to be retained by the United States and Japan. The circumstances that seven of the eight have already been dismantled is probably due as much to financial reasons as to any wish to give the other powers a lead in disarmament.

Let us, as Dr. Johnson enjoined, clear our minds of cant. But, having done so, let us recognize facts as such. Great Britain has anticipated her treaty obligations. The United States and Japan, on the other hand, prefer to wait until the agreement is ratified, and no doubt they are wise to do so. British opinion recognizes the attitude of both powers as being perfectly correct and no sane person here blames them for hesitating to scrap good ships before there is a concrete guarantee of reciprocal action. —*Baltimore Sun*, 22 December, 1922.

FRANCE AND THE NAVAL TREATY.—Last year, in a remarkable study of the super-dreadnaught, the English Admiral Sir Reginald Bacon wrote:

"We must consider that Continental Europe, from a naval point of view, is exhausted. The triple alliance has faded away; France and Italy cannot build any large number of ships due to financial reasons; Russia is no longer a world power. Also, the theater of naval operations is removed from the North Sea, the English Channel and the Mediterranean, and is transferred to the Atlantic and Pacific."

One might believe that this theory will rest correct for quite a time. France has not as yet received any reparations, and Italy is under a financial strain. These two nations—which have no aggressive ideas—something which Sir Bacon might well have noted—are certainly not in a measure to construct a Navy as the English Admiral remarked. But, thanks to the errors which have been committed in the Orient, Russia has already commenced to play an important rôle in the equality of naval power.

Even this morning, while the conference at Lausanne was discussing the future of the straits, the Russian delegates made their appearance at

the conference. They did not appear as allies nor as a vanquished power. True, Russia has not as yet commenced to build up her Navy, still the ships which she does not even yet possess, seem to already worry the British Admiralty. At Lausanne, in reply to the Russian expositions of this morning, England will, no doubt, ask that her Navy be permitted to pass the straits and enter the Black Sea. At Bucarest, it is represented to our friends the Roumanians that the English Fleet will be their protector against Russia. In the Straits England has massed a strong naval force, which the London *Times* gives its formidable composition as follows: three battleships at Constantinople; one battleship near Prinkipo; two battleships at Echanak; and one other battleship near Gallipoli, without counting seven light cruisers, thirty-three destroyers, two aviation carriers, six submarines, etc. thirty-one units, of which two battleships belong to the Atlantic Fleet, without mentioning the battle cruiser *Hood* which has been ordered to Gibraltar. Thus—England strips the Atlantic to concentrate her ships at the entrance to the Black Sea. How then can we pretend that Russia is not a Naval power. Since the defeat of the Greeks has made England decide to mobilize her ships we again hear, from the other side of the channel, with more insistance than ever, the voice reclaiming the putting into force the Washington Agreement.

Last Wednesday replying to a question in the House of Commons, M. Eyres-Monsell explained that England has already commenced to comply with the Treaty, and that eight of her capital ships have been sold to be broken up, and six others have been rendered useless for future use. On December 1 the Paris edition of the New York *Herald* published a telegram on this subject. We found therein a list of the ships to which Mr. Eyres-Monsell had reference. The eight battleships sold to be broken up were: *Commonwealth, Dreadnaught, Saint Vincent, Inflexible, Hercules, Indomitable* and the *Temeraire*. One is tempted to believe that these ships have been recently demolished, when the fact of the matter is—that they did not figure in the list of the British Fleet dated February 1, 1922. In America it was intimated that England simply got rid of the ships that were of no further use as fighting craft. In England, as will be seen from the London *Times* of Friday, they strongly protested against this accusation. On the other hand, if the United States destroy the ships which the Washington Conference calls for they will only destroy old ships. But that is not the real question at issue.

The Treaty of Washington stipulates also the ceasing of work on certain ships under construction. If we look at the British list of February 1, 1922, we see that the stopping of ship construction is not equally divided. England has not at present any ships under construction. Japan must destroy two battleships now under construction except she can transform them into aviation carriers. The United States must cease building the seven battleships now underway (the six of the *South Dakota* class, 43,200 tons and four battle cruisers 43,500 tons). We then see—that the grand affair at Washington did not only concern itself with the demolition of ships, but also with the stopping of construction on ships now in the stocks. In case the construction of ships had continued, England would have had to make a strenuous effort in order that she would not have been out-done by the United States.

Is the United States really disposed to apply the treaty of Washington? The Administration, at least, has no intention of changing its policy. The Washington Conference has been a coup diplomatic for Mr. Hughes, and we know too well the character of this statesman to think that he will disavow his work. Even the recent election results will not change his mind. Certainly the United States has the right to state that the Treaty is not executable since it has not been ratified by all parties. On November 14, in the House of Representatives, the Com-

mittee examined the budget for the Navy for 1923-24. Giving an account of this meeting, where the proposals put forth by the Administration were not seriously objected to, the New York *Herald* writes as follows: The program of construction will continue, and the question of demolition will be suspended, until such time as all parties ratify the treaty of Washington.

In London they are very desirous that France ratify the Treaty. Italy can hardly refuse to do so. As the other three powers have already declared their intention to sign the Treaty, the Treaty would then soon become operative, in which case the United States would not be able to continue the construction of battleships.

But now comes a new side of the affair of which we have spoken previously. Russia has appeared again as a Naval Power, and England is so fully aware of this fact that she has massed her Navy in the Straits. Is it wise to ratify the Treaty and put it in vigor—when there is no limit placed on the Russian armaments? These armaments, which are almost inevitable if the question of the Straits is decided against Russia, do they not risk being the cause of the pretext for abrogating the Washington agreement?

The situation is embarrassing and, for our part, we only see two possible solutions.

To ratify the treaty with reserves—the reserves depending on the consequences, either direct or indirect, which will be produced by the building of the Russian Navy. That would amount to the Washington Treaty not binding the European nations.

Or, recognize that all limitation is in vain if Russia is not taken into consideration, and try and negotiate separately a broader agreement with Russia.

The second of these solutions is perhaps the most laborious. But it is certainly the most loyal and that is why we would prefer it.—*Le Temps*, 5 December, 1922.

ADOPT PACIFIC TREATY IN FRENCH COMMITTEE.—Paris, January 17 (Associated Press).—The commission on foreign affairs of the Chamber of Deputies today adopted the report submitted by Deputy Raynaldy to the sub-commission yesterday in favor of ratification of the Washington Conference agreement concerning the Pacific.

The commission decided to recommend the same reservations as those made by the American Senate concerning military intervention.

The report of Deputy Guernier on the Washington naval agreement will come before the commission in a fortnight.—*New York Times*, 18 January, 1923.

ITALY EXPECTED TO RATIFY WASHINGTON TREATY SOON.—It is reported from a confidential and reliable source that it is the intention of the Italian government soon to ratify the Washington agreements relative to naval disarmament, the Pacific and Far Eastern questions.

Some delay has been caused through disagreement with the Chinese government over the matter of disposal of certain Austrian Lloyd ships that were interned in Chinese ports during the war and since have been seized by the Chinese authorities. It is the Italian point of view that the Versailles Conference decided to pool all former enemy ships thus seized by the allied or associated powers and to redistribute this tonnage among the victorious powers in proportion to the merchant tonnage lost during the war. China suffered no such losses, and hence is not entitled to any vessels, according to Italian official opinion.

Notwithstanding this unsettled question, it now is the intention of the Italian government to ratify all of the Washington agreements, including those relative to China.—*Army and Navy Journal*, 30 December, 1922.

THREE-POWER PACT FAVORED BY JAPAN.—Tokio, December 25.—If France and Italy fail to ratify the Washington Naval Treaty, an agreement for carrying it out might be arranged among England, America and Japan, the peers were told today by Admiral Ide, speaking in place of Premier Kato, who was indisposed.

Admiral Ide explained that such an agreement would be made easier by the fact that Japan already was proceeding with preparations for the naval reorganization. He added that as long as America did not alter her program for auxiliary ships Japan would pursue her revised scheme announced last summer, maintaining a ship ratio of six to America's ten.

Questioned as to whether there was danger that the Japanese Navy would be overbalanced by the American Navy, the Admiral replied that Japan's Navy was superior in the speed of ships and the accommodations of dockyards.—*Baltimore Sun*, 26 December, 1922.

BRITISH SKEPTICAL ABOUT FURTHER LIMITATION.—London, December 21.—Much interest has been aroused in British naval circles by the news that the House of Representatives has adopted the Navy Committee's request that President Harding shall invite the five powers affected by the original limitation treaty to negotiate a fresh compact for the restriction of auxiliary combatant tonnage. It is doubted, however, whether the moment is opportune for such a step, however desirable it may be.

The feverish energy with which Japan is adding to her navy fast cruisers and big submarines—two types specially adapted to offensive warfare and commerce raiding—has not escaped notice on this side of the Atlantic, and it is well understood that the United States has reason to be perturbed by this hectic activity in the dockyards of the Far East. It was fully expected here that a large appropriation for new construction would be submitted to Congress this month, and there was consequently some surprise at Mr. Secretary Denby's recent statement that no new ships would be asked for at the present juncture. The delay is ascribed to political and financial reasons. But failing an immediate program of cruisers and submarines, the relative position of power which the treaty assigns to the United States will be hopelessly lost, and her navy rendered incapable of fighting a successful war in the Pacific, or in any other ocean for that matter.

In these circumstances a new treaty to make good the shortcomings of the original pact is no doubt a very attractive idea, but whether it can be realized is far from certain. Every effort was made during the first conference to bring auxiliary tonnage under the same restrictions as were imposed upon capital ships, but without avail. France firmly refused to accept the rato of submarine tonnage allotted to her and stood out for a considerably higher figure. This made it impossible to restrict the number of destroyers, which are *par excellence* the antidote to the submarine. Then the British delegates pointed out that the development of ocean-going *U*-boats with heavy armament had also brought light cruisers into the category of anti-submarine craft, besides which these vessels were the natural protectors of the destroyer, and it would therefore be impracticable to limit either cruisers or destroyers if no check were placed on the expansion of submarine tonnage.

Japan, on her side, was opposed to restricting auxiliary ships, which Admiral Baron Kato declared to be essentially defensive. But thanks to France's refusal to accept the submarine ratio, the Japanese delegates were relieved of the invidious task of demanding a free hand in regard to auxiliary tonnage, though it is known they were prepared to do so had it been necessary. Even the American naval representatives are under-

stood to have been against restrictions on auxiliary tonnage without a corresponding check on underwater craft.

Such was the position a year ago and nothing has occurred in the interval to modify the attitude which the powers respectively took upon that occasion. On the contrary, France is more convinced than ever that her naval future lies with the submarine. Since the conference she has begun or ordered twenty-four *U*-boats, which are stated to be only the first installment of her future submersible fleet. It is therefore in the last degree improbable that she would now agree to limit the dimensions of this fleet, even if she were offered a much higher ratio than it was proposed to grant her at Washington. And so long as France remains free to build as many submarines as she pleases, Great Britain could not with safety bind herself down to a fixed ratio of anti-submarine craft, which, in the opinion of her experts, comprise both cruisers and destroyers.

As regards Italy, that power has made it clear that she will enter into no naval commitments which do not equally affect France. It is for this reason that Rome has delayed ratification of the original treaty, and now that a strong Nationalist Government has come into office, there is less prospect than ever that Italy will agree to compromise her maritime position *vis-à-vis* France.

It will be seen, therefore, that the existing situation in Europe is decidely unfavorable to an early extension of the naval disarmament scheme. Nor is it likely that Japan would welcome such a proposal, since she justifies her present big program of auxiliary construction on two grounds, military and economic. With a battle fleet of only ten capital ships it is essential, she argues, that she be adequately provided with other means of defense, such as cruisers and submarines, and the program now in course of execution is declared to be the absolute minimum consistent with national safety. Yet this program will eventually give her twice as much auxiliary tonnage as she would have possessed if Mr. Hughes' scheme had been adopted.

The economic reason for the program is the necessity of saving from ruin the shipbuilding and allied trades, which form so important a part of the Japanese industrial system, and any proposal to cut down the number of auxiliary warships now building or ordered would be fiercely resisted by the business community as a whole, whose influence on national policy is second only to that of the militarist party. Moreover, the Government fears, or affects to fear, the social unrest that would be provoked were the naval shipbuilding yards and armament factories to lose the work they now have in hand, and thus be compelled to discharge many thousands of their men. It has been estimated than 80,000 families in Japan are directly dependent for their livelihood on the industries in question.

If the foregoing summary of prevailing conditions is correct, there is scarcely any hope of negotiating a new treaty of naval limitations within the near future. And since the Washington Cabinet is obviously in touch with the actualities of the world situation, it is considered most improbable that President Harding will act upon the invitation transmitted to him by Congress. No government cares to expose itself to a serious diplomatic rebuff, yet that risk would undoubtedly be incurred by any government which proposed at this time to summon a conference for the restriction of minor sea armaments.

Naval opinion here is faithfully, if somewhat bluntly, interpreted by one of the service journals, which writes as follows: "It is, after all, mainly a question whether the American people are prepared to pay for their own defense. The financial strain entailed by a building program sufficient to equip their fleet with the cruisers and submarines it needs would not be a serious one in proportion to the national wealth. British taxpayers have readily agreed to spend £14,000,000 on two warships which they believe to be essential for security, and their burden is already infinitely heavier than that of the American taxpayer."—Hector C. Bywater in *Baltimore Sun*, 4 January, 1923.

JAPAN OPPOSED TO LIMIT ON SMALLER WARSHIPS.—Tokio, December 18—The Naval Appropriation Committee's proposal at Washington to supplement the naval treaty by another pact limiting auxiliary ships and submarines is not likely to receive the indorsement of Japanese naval officials, who do not expect the proposal will result in any definite action.

The question of limiting other than capital ships when brought up in the Washington Arms Conference met such opposition that officials believe the Powers could not reach an effective agreement now. Japanese officials and the public generally are eager to see final ratification of the Washington pact, and news that France will decide on it in January was hopefully received.

Should France and Italy or either withhold ratification or cause further delay it is safe to say Japan would be willing to join the United States and Great Britain in a three-Power treaty limiting capital ships, as agreed in the Washington Conference. Further than that she is not now inclined to go.—*Boston Evening Transcript*, 18 December, 1922.

TABLE OF COMPARISON OF WARSHIPS—UNITED STATES, GREAT BRITAIN, JAPAN.—The tables given below show the number of modern warships of various classes of the United States, Great Britain and Japan, either completed, building or projected, as shown by the official records of the United States Navy Department for October 1, 1922.

In the table of modern combatant ships completed whose numbers are not affected by treaty, it will be seen that in destroyers the United States is far in the lead, and she also is largely ahead in submarines of the first Line. In fleet submarines, however, Great Britain has six against three for the United States.

In cruisers of the first line of 27 knots Great Britain has four while the United States and Japan have nine. In light cruisers of 27 knots Great Britain also has the advantage, having forty of this class of vessel, while the United States has none and Japan has ten.

Referring to the table of combatant ships building or projected, it will be seen that the United States has no cruisers of 27 knots projected, while Great Britain has two vessels of this class projected and Japan has four.

In light cruisers of 27 knots Japan leads slightly in numbers, having eleven vessels projected, against ten by the United States and two by Great Britain. The tonnage of the ten United States ships, however, exceeds that of Japan by 8,480 tons.

In submarines under this head the United States enjoys a big advantage, having thirty-five building or projected, against twenty-one by Japan, and six by Great Britain. In fleet submarines, however, Japan is far in the lead, having twenty-five fleet submarines building or projected, against three by the United States and two by Great Britain. Japan is also in the lead in destroyers, building or projected, having thirty-nine under this head, while Great Britain has only five, and while the United States had authority to build twelve, this authority was suspended.

The aircraft carriers are all limited by treaty, and the table as to this type of craft shows that the United States and Great Britain each have 135,000 tonnage completed and Japan has 81,000 tons.

**Data Regarding Modern Combatant Ships Whose Numbers Are Not Affected by the Treaty—Completed**

| Type | United States No. | United States Tons | British Empire No. | British Empire Tons | Japan No. | Japan Tons |
|---|---|---|---|---|---|---|
| Cruisers, first line (8,000 tons plus, 27 kts. plus) | 0 | ..... | 4 | 56,700 | 0 | ..... |
| Light cruisers, first line (3,000 tons plus, 27 kts. plus) | 0 | ..... | 40 | *161,690 | 10 | 51,210 |
| Flotilla leaders (1,500 tons plus) | 0 | ..... | 16 | 27,810 | 0 | ..... |
| Destroyers, first line (800 to 1,500 tons) | 281 | 333,917 | 185 | †210,111 | 53 | 54,985 |
| Light mine layers | 14 | 16,674 | 0 | ..... | 0 | ..... |
| Submarines, first line (500 to 1,000 tons) | 59 | 37,142 | 36 | 29,157 | 28 | 34,574 |
| Fleet submarines (1,000 tons plus, 20 kts. plus) | 3 | 3,318 | 6 | 11,280 | 0 | ..... |
| Mine layers submarines | 0 | ..... | 7 | 5,546 | 0 | ..... |
| Monitors, first line (14" plus, 6,000 tons plus) | 0 | ..... | 3 | 22,670 | 0 | ..... |
| Monitor submarines | 0 | ..... | 3 | 4,800 | 0 | ..... |

* Includes four cruisers of 3,500 that are for disposal, but still on Royal Navy list.
† Includes six destroyers of total 5,908 tons that are for disposal, but still on Royal Navy list.

**Data Regarding Modern Combatant Ships Whose Numbers Are Not Affected by the Treaty—Building or Projected—No Treaty Limit on Numbers That Can be Built**

| Type | United States No. | United States Tons | British Empire No. | British Empire Tons | Japan No. | Japan Tons |
|---|---|---|---|---|---|---|
| Cruisers, first line (8,000 tons plus, 27 kts. plus) | 0 | ..... | 2 | 19,500 | 4 | 40,000 |
| Light cruisers, first line (3,000 tons plus, 27 kts. plus) | 10 | 75,000 | 2 | 15,100 | 11 | 66,330 |
| Flotilla leaders (1,500 tons plus) | 0 | ..... | 2 | 3,500 | 1 | ? |
| Destroyers, first line (800 to 1,500 tons) | See | note* | 5 | 6,125 | 39 | 49,975 |
| Mine-layers, first line | 0 | ..... | 1 | ? | 1 | ? |
| Submarines, first line (500 to 1,000 tons) | 35 | 29,553 | 6 | 5,550 | 21 | 18,340 |
| Fleet submarines (1,000 tons plus) | 3 | †6,375 | 2 | 3,880 | 25 | 32,665 |

* Twelve boats authorized, but not built, and authority to construct suspended.
† Six boats authorized, but construction held in abeyance.

**Aircraft Carriers—Are Limited by Treaty—Completed—Aircraft Carriers (All Experimental and Can be Replaced)**

| Type | United States No. | United States Tons | British Empire No. | British Empire Tons | Japan No. | Japan Tons |
|---|---|---|---|---|---|---|
| Aircraft carriers, first line | 0 | ..... | 1 | 19,100 | 0 | ..... |
| Aircraft carriers, second line | 1 | 12,700 | 3 | 24,600 | 1 | 9,500 |
| Total | 1 | 12,700 | 4 | 43,700 | 1 | 9,500 |
| Tonnage allowed under treaty | .... | 135,000 | .... | 135,000 | .... | 81,000 |

**Building—Aircraft Carriers**

| Type | United States No. | United States Tons | British Empire No. | British Empire Tons | Japan No. | Japan Tons |
|---|---|---|---|---|---|---|
| Aircraft carriers, first line | See | note ‡ | 0 | ..... | See | note § |
| Aircraft carriers, second line | 0 | ..... | 2 | ¶38,850 | 2 | \|\| 19,800 |

‡United States may convert two ships building required to be scrapped into plane carriers, not to exceed 33,000 tons each.
§ Japan same. Not yet definitely known whether *Amagi* and *Akagi* will be converted, or two new ships of 27,000 tons' displacement will be built.
¶Experimental; can be replaced.
|| Old 8-8 program called for two aircraft carriers, besides *Hosho*. One is building. Not known whether other will be built.—*Army and Navy Journal*, 30 December, 1922.

RESULTS OF THE CONFERENCE.—On December 30, 1922, the Secretary of State addressed the Annual Meeting of the American Historical Association on the subject: "Some Aspects of our Foreign Policy." The following paragraphs cover about one-fifth of the entire address:

*Policy of the Naval Treaty.*—The policy of limiting armaments by international agreement has widespread approval. There is no doubt that it has the support of a preponderant sentiment in this country. It seems to be the only way to avoid either a self-imposed sacrifice of security by independent limitation or a competition involving most wasteful expenditures and provocative of war. If you wish peace, you must pursue the paths of peace. Reasonable precaution in a prudent preparation for contingencies is one thing; a bellicose disposition and threatening gestures and preparation are quite different. Competition has its dangers for those who live under constitutional government where the purse strings may be closely held. Those who constantly insist that we should go our own way, scorning the agreements of peace, using our great resources to establish a superiority in armament which would brook no resistance, need a word of caution. It is very important not to wake up the wrong man. At the last it may turn out that you have stirred up fears and corresponding activities elsewhere while your own people refuse to respond to your stimulus. While power and resources may be abundant, the power may not be exercised and you may lose the race which your bravado has encouraged. To a peace-loving democracy what could be more agreeable than reasonable security under an agreement which halts a wasteful competition in armament?

The question really comes, not to the advisability of such an agreement in the abstract, but to the fairness of a particular agreement. One indication that the present Naval Treaty is fair to all may perhaps be found in the fact that in each of the three countries, the United States, Great Britain, and Japan, there were loud complaints that the treaty was to the advantage of the others. As all could not be right, it may be proper to assume that what the naval authorities of these countries in attendance at the Conference approved, was relatively fair. The definitions with respect to standards of measurement and displacement are the same for all Powers. No unfair advantage is given to anyone.

There was general agreement that capital ship tonnage should be used as the measurement of strength of the respective navies. Of course there would be differences of view as to any matter of this sort, but this was the opinion of our experts and of others. With this as a basis for the agreement, we took the existing strength of the different navies as they were. What could be fairer than that? If one Power could better its position, so could another, and the race would inevitably continue. We insisted, and this was entirely reasonable, that vessels under construction should be counted simply to the extent of the work done at the date of the Conference.

The Conference put a stop to competition in capital ships—the great fighting ships of the rival navies. It put an end to the existing competitive programs in capital ships. It established the ratio based on existing strength and took the measure of that strength as shown by the proportion of capital ships built and in course of construction. Based on that standard of measurement, and taking into consideration the factor of age, the Treaty provides for scrapping which will reduce the present capital ship tonnage of the United States to 500,650 tons; of the British Empire to 580,450 tons and of Japan to 301,320 tons, the ships to be retained being named in the Treaty.

On the completion of the two ships of the *West Virginia* class and the scrapping of the *North Dakota* and the *Delaware*, in accordance with the

Treaty, the total capital ship tonnage to be retained by the United States will be 525,850 tons. On the completion of the two new ships to be constructed by the British Empire and the scrapping at that time of four of the older ships, as provided in the Treaty, the total capital ship tonnage retained by the British Empire will be 558,950 tons.

The replacement tonnage of the capital ships of the United States, British Empire and Japan is fixed in the ratio of 5:5:3, and the total capital ship replacement tonnage of the five Powers is to be as follows: For the United States, 525,000 tons; for the British Empire, 525,000 tons; for France, 175,000 tons; for Italy, 175,000 tons; for Japan, 315,000 tons.

*Fortifications.* Failing to find unfairness in these provisions of the Treaty, there has been some criticism of the agreement to maintain the *status quo* with respect to fortifications and naval bases in the Pacific Ocean. The United States, British Empire and Japan agree to maintain this *status quo* in their respective territories and possessions specified as follows:

"(1) The insular possessions which the United States now holds or may hereafter acquire in the Pacific Ocean, except (a) those adjacent to the coast of the United States, Alaska and the Panama Canal Zone, not including the Aleutian Islands, and (b) the Hawaiian Islands;

"(2) Hongkong and the insular possessions which the British Empire now holds or may hereafter acquire in the Pacific Ocean, east of the meridian of 110 degrees east longitude, except (a) those adjacent to the coast of Canada, (b) the Commonwealth of Australia and its Territories, and (c) New Zealand;

"(3) The following insular territories and possessions of Japan in the Pacific Ocean, to wit; the Kurile Islands, the Bonin Islands, Amami-Oshima, the Loochoo Islands, Formosa and the Pescadores, and any insular territories or possessions in the Pacific Ocean which Japan may hereafter acquire."

With respect to the United States this means that we cannot increase our fortifications and naval bases in the Philippines, Guam and the Aleutian Islands. We are free to add to our fortifications and naval bases in the Hawaiian Islands, and in the islands adjacent to the coast of the United States, Alaska and the Panama Canal Zone, except the Aleutian Islands.

It is hardly necessary to say that every naval strategist has looked at Guam as an island of great strategic value. In fact, its position presents such opportunities that commensurate fortifications and naval facilities, however peaceful might be our actual intent, could hardly fail to be regarded as a menacing gesture of no slight consequence.

But while naval facts are important, political facts are just as important. The strategist will accomplish nothing without his Congress. The political consequences of the action he desires cannot be ignored. We have heard so much from naval experts about Guam that I must refer to what Senator Lodge said about this island during the debate in the Senate on the Naval Treaty. He said that he had been "a good deal amused at the agony of apprehension which some persons have expressed in regard to Guam." We had taken that island in the Spanish-American War; it was taken by the cruiser *Charleston*. But we had had so little interest in the island that we had never passed any legislation to provide for its government. It had been left in the hands of the navy which captured it. The captain of the ship represented the captors and ruled the island. The Senator added that we had never fortified it and nobody would vote spending money in fortifying it.

Was it not better that at a time of considerable tension, instead of threatening Japan by a proposal to fortify Guam, we should agree that for fifteen years we should rest content with the situation with which we

had been satisfied for the past twenty-three years? And it should be remembered that in the same treaty Japan undertakes to maintain the *status quo* in the Kurile Islands, the Bonin Islands, Amami-Oshima, the Loochoo Islands, Formosa and the Pescadores, and any other insular possessions she may hereafter acquire.

My conclusion is that the Naval Treaty will stand the test of analysis and fair statement taking all the pertinent facts into consideration; and that it will be a desirable safeguard and not a menace to our security and at the same time an important assurance of peace. These happy results will be attained, however, on the condition that we act toward other nations in the same spirit of reasonableness and friendship that we expect them to exhibit toward us.

*Auxiliary vessels—Light Cruisers, et cetera.* The original American proposal contemplated a limitation of auxiliary combatant craft in a ratio similar to that recognized by the treaty as to capital ships. It was proposed that the tonnage of auxiliary surface combatant craft including light cruisers, flotilla leaders and destroyers should be as follows: for the United States 450,000 tons; for the British Empire 450,000 tons; for Japan 270,000 tons. Unfortunately this limitation was not secured. I shall not review the reasons for this, but I may say that the failure is not attributable to us. The American position is just the same as it was at the Conference and we should welcome the opportunity to make the agreement upon this subject that we then proposed. So far as I am able to see the difficulties that then stood in the way of such an agreement between the Powers signatory to the treaty still stand.

It should be noted, however, that while the Naval Treaty does not limit the total tonnage, or the tonnage of particular classes, of auxiliary combatant craft, it does limit the size and armament of individual vessels of this sort. The Treaty effectively limits capital ship tonnage, and a capital ship, in the case of ships hereafter built, is defined as a vessel of war, other than an aircraft carrier, with a displacement of more than 10,000 tons or which carries a gun exceeding a caliber of eight inches. The tonnage of aircraft carriers is limited. The Treaty provides that no vessels of war exceeding 10,000 tons (except capital ships and aircraft carriers as stipulated under the Treaty) may be constructed by, for, or within the jurisdiction of, any of the contracting Powers. This is a substantial limitation.

As to light cruisers, the United States is not as well supplied as it should be, but the Treaty does not interfere with adequate provision by the United States to supply this want and it should be supplied. This may be done on a basis which I have no doubt all Powers would recognize as reasonable and without starting an injurious competition. Moreover, at the worst, it should be remembered that competition in combatant craft of not more than 10,000 tons with 8-in. guns is a very different thing than unlimited competition in the monster battleships of over 30,000 tons and which in the case of projected Hoods were running to nearly 50,000 tons.

While the three great Naval Powers are not under an agreement as to limitation upon the total tonnage of auxiliary combatant craft, it ought to be possible to arrange a *modus vivendi* which would preclude a wasteful and unnecessary competition. While plans are now being made by other Powers for new construction of auxiliary combatant craft, there is nothing that can be called in any degree alarming. The point of difficulty, so far as the United States is concerned, is that there is not a proper balance in its navy because of the lack of light cruisers, but as I have said this could properly be remedied.

NAVAL CONSTRUCTION IN 1922.—So far as Europe and the United States were concerned, the past year was one of almost complete stagnation in the

sphere of naval shipbuilding. Only one capital ship was actually laid down, and no new program of heavy construction was adopted. This inactivity was due in part to the economic embarrassments bequeathed by the war, and in part to the Limitation Treaty negotiated at Washington. As a direct consequence of the latter, four capital ships of the largest dimensions, which would now have been on the stocks in this country, were cancelled in November, 1921, and building operations on thirteen similar vessels for the United States Navy were suspended at or about the same date. France, having definitely discarded the battleships she was building at the outbreak of war, made a start last year with her modest program of light construction, which is limited to three cruisers, twenty-four destroyers, and twelve submarines. Italy is at work on a few small craft, but her cruiser program foreshadowed in 1921 has not yet matured. With the exception of Spain, none of the secondary Powers is paying much attention to naval development, and to most of them the present building costs, even for the smallest types of craft, are prohibitive. Only in Japan were the shipyards busily employed throughout the year on naval construction. There the effects of the Washington Treaty, which put a stop to the capital ship program, were partly mitigated by the Government's decision to press on with the building of ships outside the scope of the agreement, and that has been done to such purpose that the aggregate of fighting tonnage now under construction in Japan greatly exceeds the total for Europe and America combined.

## Great Britain

The outstanding event of the year was, of course, the allocation during the second week in December of the contracts for the two capital ships, each of 35,000 tons, which Great Britain is empowered to build under the Limitation Treaty. One is to be built by Armstrong, Whitworth and Company, Limited, at their Walker yard on the Tyne, the engines and boilers being manufactured by the Wallsend Slipway Company, Limited; and the other by Cammell Laird and Company, Limited, on the Mersey, the propelling machinery in this case being supplied by the builders. Preliminary work was begun immediately after the contracts had been awarded, and the keel of the Cammell Laird ship was laid at Birkenhead on December 29. Further particulars of the contracts and their effect on the general industrial situation have been given in our columns so recently that they need not be repeated here. Exactly nine years have elapsed since the last battleships were begun for the British Navy, work on the *Royal Sovereign* and the *Royal Oak* having commenced in January, 1914. The *Hood*, a battle cruiser, was laid down in September, 1916, so that no new capital ship has been put in hand for this country for well over six years. From the Armistice of November, 1918, to the present date, only two new keels have been laid for the naval service—a submarine and a mine-laying cruiser. What this almost complete cessation of naval orders has meant to the shipbuilding and allied industries can best be appreciated by recalling the volume of work which they enjoyed during the four years preceding the war, from 1911-14 inclusive. Within that period the following vessels were laid down:

| | | |
|---|---|---|
| 4 | battleships, *King George V* class, each 23,000 tons | 92,000 tons |
| 4 | battleships, *Iron Duke* class, each 25,000 tons | 100,000 tons |
| 5 | battleships, *Queen Elizabeth* class, each 27,500 tons | 137,500 tons |
| 5 | battleships, *Royal Sovereign* class, each 25,750 tons | 128,750 tons |
| 1 | battle cruiser *Queen Mary*, 26,500 tons | 55,000 tons |
| 1 | battle cruiser *Tiger*, 28,500 tons | |
| 6 | light cruisers, *Town* class, each 5,400 tons | 32,400 tons |
| 16 | light cruisers, *Arethusa* class, each 3,500 tons | 56,000 tons |

| | | |
|---|---|---|
| 75 destroyers, each averaging 800 tons | | 60,000 tons |
| 30 submarines, each averaging 650 tons | | 19,500 tons |
| 147 vessels | Aggregate displacement | 681,150 tons |

In addition to the above, many auxiliary ships were built for the Admiralty, and a considerable number of foreign naval contracts—including four battleships—were booked during the four years in question. These figures justify the assertion that the shipbuilding and naval armament industry has suffered more severely than any other branch of trade by reason of the post-war policy of retrenchment.

The completion of ships begun under the war program has continued to give a limited amount of work to the Royal Dockyards. According to an Admiralty statement in Parliament on December 5, the following vessels were then under construction:

| | |
|---|---|
| Light cruisers | 4 |
| Cruiser mine-layer | 1 |
| Flotilla leaders | 2 |
| Destroyers | 4 |
| Submarines | 8 |
| Coastal motor boats | 3 |

Excepting the cruiser mine-layer, one submarine, and the three C. M. Bs, all the above-named vessels were begun during the war. The four light cruisers are: the *Frobisher*, 9,750 tons, laid down at Devonport in August, 1916, and launched in March, 1920; the *Effingham*, a sister ship, commenced at Portsmouth in April, 1917, and launched in June, 1921; the *Enterprise*, 7,600 tons, begun at Clydebank in June, 1918, and launched in December of the following year; and the *Emerald*, a sister ship, laid down by Armstrongs in September, 1918, and launched in May, 1920. As we have previously described these ships, it is only necessary to say that the first two belong to the well-known *Raleigh* class—the nameship of which was wrecked off Labrador last August—which combines high speed, great cruising endurance, and heavy armament; while the second pair were specially designed for fast steaming and are expected to attain 33 knots in light condition. The flotilla leaders are the *Keppel* and *Broke*—formerly *Rooke*—sister boats begun just before the Armistice by Thornycrofts, and subsequently towed to Portsmouth for completion. Their leading particulars are: length, 329 ft.; beam, 32 ft.; draught, 14¾ ft.; displacement, 1,750 tons; speed, 36 knots at 40,000 shaft horsepower; armament, five 4.7-in. guns, one 3-in. anti-aircraft, six torpedo tubes. Of the eight submarines, one is the *K-26*, a steam-driven boat of 1,880 tons, with a designed surface speed of 24 knots; and six belong to the *L* class, 890 tons, 17.5 knots. The eighth boat is *X-1*, laid down at Chatham on November 1, 1921. Her details have not yet been published, but she is understood to be of large dimensions and to embody novel features suggested by war experience. The building operations are being conducted with great secrecy.

The keel plate of the cruiser mine-layer, to be named *Adventure*, was laid at Devonport on November 29. She represents a type new to the British Navy, but her functions are sufficiently indicated by the description. During the war Germany built two small cruisers, *Brummer* and *Bremse*, of very high speed, for the special work of laying mines. The ship building at Devonport appears to be considerably larger than these. Her dimensions are unofficially stated to be:—Length, 500 ft.; beam, 58 ft.; displacement, 7,000 tons; the ratio of breadth to length indicating that a high speed is aimed at. According to a Press report published last month, the design, which is the work of Sir E. H. Tennyson d'Eyncourt, "marks a new departure, so that she may be regarded as an experimental ship; and

although the character of her armament is at present confidential, it is believed that she will be heavily armed for a vessel of this class." As the Navy Estimates for the current fiscal year provide for only £294,99 to be spent upon her, it looks as if slow progress is to be made with the building of the ship, in the earlier stages at least.

The present year is expected to witness the completion of the aircraft carrier *Hermes*, the first ship to be specially designed for the duty designated. Begun by Armstrong in January, 1918, she was launched in September, 1919, and then towed to Devonport for completion. Her length is 594½ ft. over all; beam, 70 ft.; draught, 18¾ ft.; displacement, 10,950 tons. She has geared turbines of 40,000 shaft horsepower for a speed of 25 knots. The armament includes seven 6-in. guns and four 4-in. anti-aircraft. The boiler uptakes are led into a single large elliptical funnel which, together with a light superstructure and a tripod foremast, is placed on the extreme starboard side, thus leaving a large area of deck space clear for machines to take off and alight. The ship has light armor over vital parts, and it is protected against underwater attack by bulges. Another aircraft carrier, the *Eagle*, which although nominally completed in 1920 has since undergone a refit involving partial reconstruction, is also expected to hoist the pennant this year. Laid down as a battleship for the Chilean Government, but taken over by the Admiralty and converted into an aircraft carrier, the *Eagle* is 661 ft. long, 104 ft. in beam, and displaces 22,790 tons. She burns coal and oil, and has a designed speed of 24 knots. Originally equipped with one funnel, she now has two, and these, with the upperworks and tripod mast, are disposed on the starboard side, as in the *Hermes*. The hull has armor and bulge protection. Armament: nine 6-in. guns, six 4-in. anti-aircraft. The number of aeroplanes she will carry when in service has not been disclosed. A third vessel of the same generic type, the *Furious*—designed initially as a fast cruiser to mount two 18-in. guns and afterwards converted into a carrier—has been at Devonport since last June, undergoing a refit, the extensive nature of which is indicated by the large sum, £300,315, set apart in the current Estimates to be spent on her. As the center-line position of her huge funnel tended to cause "air pockets," and the superstructure was inconveniently placed for machines alighting on the deck, it is understood that she will emerge from her refit minus these obstructions and fitted with horizontal ducts for the emission of furnace gases and smoke from the side, as is the case in the *Argus*.

## United States

In accordance with the provisions of the Limitation Treaty, work was suspended early last year on the seven battleships and six battle cruisers which are surplus to the tonnage ratio accorded to the United States, and the only capital ships now completing are the *Colorado* and *West Virginia*. These belong to the *Maryland* class, the nameship of which entered service in the autumn of 1921. On October 1, 1922, the latest date for which official figures are available, the *Colorado* was 93.8 and the *West Virginia* 84.1 per cent complete. The money voted for their completion is so limited that they have made very slow progress, and neither ship is sufficiently advanced as yet to be ready for her trials. The probable dates of completion are noted as July and September, 1923, respectively. The ships have been fully described in previous issues of this journal. Displacing 32,600 tons, and equipped with the system of turbo-electric drive, which has been adopted for all recent capital ships of the United States Navy, they incorporate many structural and military features based upon war data. Their armor and sub-surface protection is particularly strong. When commissioned they will form, with the *Maryland*, a squadron of post-Jutland battleships unequalled as a tactical unit, though the Japanese ships *Nagato*

and *Mutsu* are, perhaps, rather more powerful individually. The light cruiser program, voted in 1916 but not actually put in hand till 1918-20, has been greatly delayed by shortage of funds. Early last year work came to a standstill on several of the ten vessels, and so far as is known very little has been done upon them during the past twelve months. The *Omaha*, which was launched in October, 1920, and in January last was so well advanced that her trials were anticipated for the summer, is still unfinished. A few months of active work would suffice to make ready for sea the *Milwaukee, Cincinnati, Detroit, Richmond,* and *Concord,* but at the present rate of progress it is impossible to say when they will be in service.* At the close of the year there remained on the stocks the *Raleigh, Trenton, Marblehead,* and *Memphis.* The first, laid down at Fore River in August, 1920, was sixty-one and nine-tenths per cent complete in July last; the second, building at Philadelphia, since August, 1920, was fifty-two per cent complete; the *Marblehead,* also begun at Philadelphia at the same time, was thirty-six per cent; and the *Memphis,* which has been in hand at the same yard since October, 1920, only twenty-eight per cent complete. The *Detroit* was launched on June 29 last. All ten ships are built to a standard design of 7,500 tons, and have geared turbines of 90,000 shaft horsepower for a speed of 33.7 knots. If this velocity is attained they will be the swiftest cruisers in the world. The design, it will be recalled, was modified late in 1920, the armament being increased from eight 6-in. guns to twelve; this involving an increase in displacement and a corresponding reduction in speed. They will be the first American ships of war to be fitted with a tripod foremast.

Three destroyers, the *Trever, Perry,* and *Decatur,* were delivered last year, leaving no further vessels of this type under construction. The boats named are "flush deckers" of 1,215 tons and 35 knots, and were built at the Mare Island Navy Yard. On July 1,1922, there were forty submarines still under construction, but about twelve of these have since been delivered. Thirty-seven are of the *S* class, displacing from 800 to 990 tons, with a surface speed of 15 knots. They are regarded as the most successful type of submarine which has been built in the United States so far. The majority of the class have the following dimensions: length, 231 ft.; beam, 21 ft.; draught, 12½ ft.; displacement, 854 tons on surface, 1,052 tons submerged. Two sets of 600 brake horsepower Diesel engines are fitted, and the fuel supply is sufficient for a run of 5,000 miles at 11 knots speed. They are armed with four 21-in. bow tubes—five in a few boats—and one 3-in. or 4-in. gun. A special feature of this class is the heavy construction and careful subdivision, intended to minimise the effect of depth-charge attack. The remaining three boats, *V1* to *V3,* are "fleet submarines," or submersible cruisers, 335 ft. long and displacing 2,025 tons in surface trim. They are understood to be fitted with two sets of 2,400 brake horsepower engines for a speed of 21 knots. Armament: four bow and two stern tubes, and one 5-in. 51-caliber gun. Their cruising radius is estimated at 12,000 miles. Work has been resumed on the former battle cruisers, *Lexington* and *Saratoga,* which are in process of conversion to aircraft carriers, displacing 33,000 tons each. The machinery, which will remain unchanged, will develop 180,000 horsepower through sixteen boilers and General Electric turbines with electric drive. Authentic details of their armament and capacity for aeroplanes are not yet available. They will be rigged with one large funnel placed on the extreme starboard side, a cage mast, and a light superstructure. Other vessels building, and all much delayed, are: the repair ship *Medusa,* 10,000 tons; the destroyer tenders

* According to latest figures, the completion dates of the ten light cruisers are as follows: *Omaha,* January, 1923; *Milwaukee,* March, 1923; *Cincinnati,* July, 1923; *Raleigh,* "Indefinite"; *Detroit,* February, 1923; *Richmond,* February, 1923; *Concord,* May, 1923; *Trenton,* "Indefinite"; *Marblehead,* "Indefinite"; *Memphis,* "Indefinite."

*Dobbin* and *Whitney*, each 10,600 tons; and the submarine tender *Holland*, 10,600 tons. As Congress does not appear to have made any further appropriations for speeding up the completion of unfinished ships, it is expected that work on these vessels will continue at the same leisurely pace during the present year. A new program—including sixteen cruisers each of 10,000 tons—which it was proposed to introduce last month, is understood to have been deferred for financial reasons.

### Japan

The Washington Treaty having put a stop to all capital ship construction in Japan the shipyards there have been compensated by large orders for cruiser, destroyer, submarines, and auxiliary tonnage. This has been made possible, not by increasing the number of these vessels projected before the Treaty came into force—the original program has, in fact, been curtailed—but by increasing their dimensions and antedating by one year the period in which the program is to be completed. Two light cruisers were launched last year: the *Yura*, at Sasebo, on February 15, and the *Kinu*, at Kobe, on April 29. They are modified versions of the *Kuma* class, displacing about 5,600 tons and designed for a speed of 33 knots. The armament consists of seven 5.5-in. guns. The following light cruisers are on the stocks or about to be laid down: *Ayase, Otonase, Minase, Abukuma*—believed to be sister ships of the *Yura; the Yubari, Kako, Naka, Sendai, Jintsu, Kinugasa*, and *Furutori*—of 7,000 to 7,500 tons; and four ships not yet named, of 10,000 tons, to be armed with 8-in. guns. All Japanese light cruisers completed recently have proved very fast, most of them exceeding their designed speed of 33 knots, and behaving admirably at sea. Twelve or more destroyers are completing afloat, and a further twenty-four, with an average displacement of 1,500 tons, are to be begun at an early date. The present position with regard to submarines is uncertain. It is believed, however, that eighteen or twenty boats are in various stages of construction, and that twenty-four more are soon to be laid down. Among the boats launched last year was *No. 62*, on April 13, with a surface displacement of 1,500 tons. The former battle cruisers *Amagi* and *Akagi*, re-designed as aircraft carriers of 33,000 tons, are building at Yokosuka and Kure respectively, and both are expected to take the water this year.

### France

A start was made last year on the new naval program, and the following vessels are now, or shortly will be, under construction:

Three light cruisers: *Duguay-Trouin, Lamotte-Piquet, Primaguet*; displacement, 8,000 tons; geared turbines and eight oil-fired boilers, 98,000 shaft horsepower=34 knots; radius of action 4,875 miles at 15 knots. Armament: eight 6-in. guns in four turrets on the center-line, two forward and two aft; four 3-in. anti-aircraft guns, and twelve 22-in. torpedo tubes. The *Duguay-Trouin* and *Primaguet* are building at Brest, and the *Lamotte-Piquet* at Lorient.

Six flotilla leaders: *Jaguar, Panthère, Léopard, Lynx, Chacal, Tigre*. Displacement, 2,500 tons; 48,000 shaft horsepower = 35.5 knots; radius of action, 2,600 miles at 18 knots. Armament: six 5.1-in. guns, twin-mounted; two 3-in. anti-aircraft guns, and six 22-in. torpedo tubes. Their large size and powerful armament bring these vessels very near the light cruiser type.

Twelve destroyers: *Bourrasque, Cyclône, Mistral, Orage, Ouragan, Sicque, Sirocco, Tempête, Tramontane, Tighbe, Typhon, Tornade*. Displacement: 1,400 tons; 30,000 shaft horsepower = 32.5 knots. Armament: four 5.1-in. guns, two 3-in. anti-aircraft, and four 22-in. torpedo tubes.

Six first-class submarines: *Requin, Morse, Narval, Dauphin, Marsouin*,

*Souffleur.* Displacement: 1,100 tons; two 1,400 brake horsepower engines =16 knots.

Six submarines "de moyenne patrouille": *Siréne, Ariane, Circé, Calypso, Naiade, Ondine.* Displacement: 600 tons, 14 knots.

The former battleship *Béarn* is undergoing reconstruction as an aircraft carrier. No naval vessels were launched last year.

### Italy

The new Italian Government is reported to have proposed the construction of two cruisers, four destroyers, and four submarines, at an estimated cost of 200,000,000 lire. According to Press reports, one cruiser is to be built at the Orlando yard, Leghorn, and the other at the Cantiere San Rocco, Trieste. Naval work during the past year was limited to the completion of the three "scouts," or destroyers, *Leone, Pantera,* and *Tigre,* 2,200 tons and 34 knots; six smaller destroyers, *Generale* class, of 813 tons and 33 knots; and a few small gunboats of 230 tons. The project of reconditioning the battleship *Leonardo da Vinci,* which was sunk by an explosion and afterwards salved, has been given up.

### Minor Navies

There is little of interest to report in connection with the smaller navies. On August 1 there was launched at Horten Arsenal the first submarine boat to be entirely built and engined in Norway. She is of 420 tons and 14.5 knots speed. Another boat, similar in type, is on the stocks. Germany is building at Wilhelmshaven a light cruiser of 5,600 tons, which will probably be launched this year. Holland is completing the two cruisers, *Sumatra* and *Java,* of 7,050 tons and 30 knots, and three small submarines. Spain is building two 4,725-ton cruisers of 29 knots speed; three gunboats of 1,335 tons; and five submarines of 610 tons.—*The Engineer,* 5 January, 1923.

## NOTES

"The Elder Dempster Motor Liner *Adda.*—(A detailed and illustrated description of this ship's main and auxiliary machinery)—*The Engineer,* 15 December, 1922.

"A New Lifeboat Engine"—(An article in *The Engineer* for March 1st, 1912, covers all motor lifeboat installations from 1904-11. This article describes the new Peulee lifeboat, 45 ft. by 12 ft., speed 8.4 knots, with engine completely enclosed in watertight casing)—*The Engineer,* 22 December, 1922.

"Hadfield on Corrosion of Ferrous Metals"—The preparation of the various Ferrous Metals used in the Corrosion Research of the Institution of Civil Engineers, together with their physical and mechanical properties, and some general considerations on the subject of corrosion), by Sir Robert Abbott Hadfield, with an abstract of the discussion upon the paper. Published by the Institution, Great George Street, Westminster, S. W. 1.

"X-Rays as a Means of Determining the Composition of Alloys"—(How the composition of unknown alloys may be determined by comparison of its absorption power to that of a known standard), by T. S. Fuller in *General Electric Review,* December, 1922.

PERTINENT ARTICLES IN: *The Engineer,* 5 January, 1923:
"Naval Construction in 1922";
"Electrical Engineering in 1922, No. 1";
"Aeronautics in 1922, (Illus.)";
"1922—A Retrospect."—Editorial;

"Motor Ships in 1922. (Illus)";
"Shipbuilding in 1922, (Illus)."

*Current History*, January, 1923:

1. "The Lausanne Conference."
2. "Franco-British Split on German Reparations."
3. "Betrayal of Greece by Lloyd George," by Paxton Hibben.
4. "What the British Elections Mean," by Sir Gilbert Parker.
5. "Five Years of the Russian Revolution," by Nikolai Lenin.
6. "The Tide That Swept Italy's Fascisti to Power," by Arnaldo Cortesi.
7. "Basic Causes of the Present Plight of France," by J. Ellis Barker.
8. "Why Egypt Is in Revolt," by A British Publicist.
9. "Nationalism Marches on in India," by V. B. Metta.
10. "Our Navy Unready for War," by Graser Schornstheimer.
11. "Russia's Departure From State Socialism," by Alexander I. Nazaroff.

*The Contemporary Review*, December, 1922:

1. "The Defeat of President Harding"—(An interesting review of the recent elections from an Englishman's point of view), by S. K. Ratcliffe.
2. "The Tangier Crisis"—(Somewhat along the same lines as Admiral Niblack's "Letter" published in the December, 1922, PROCEEDINGS, and of special interest to those who have studied this particular phase of Mediterranean problems) by George A. Matthey.
3. "The Future of the Philippines"—(A discussion as to whether our sovereignty is to be withdrawn, or whether some new form of government is to be ventured upon in place of the present tennous connection), by Charles Edward Russell.

# NOTES ON INTERNATIONAL AFFAIRS

## FROM DECEMBER 23 TO JANUARY 23

PREPARED BY

ALLAN WESTCOTT, Professor, U. S. Naval Academy

## FRENCH OCCUPATION OF RUHR BASIN

ALLIED DISAGREEMENT.—During the first week in January the British, French and Belgian Premiers and the Italian Foreign Minister held a series of conferences in Paris which ended in the breakdown of united Allied policy toward Germany. There was substantial agreement over the reduction of the reparations total to 50,000,000,000 gold marks, but direct British opposition to the French proposal that any moratorium should be accompanied by seizure of "productive guarantees," including occupation and control of production in the great German coal and industrial region east of the Rhine. Upon support of the French policy by Italy and Belgium, Premier Bonar Law retired from the conference, leaving France at liberty to pursue these measures without British participation. The separation was entirely friendly, with no direct indication that Allied co-operation would be disturbed in other fields. The French and British premiers defined their positions as follows:

M. Poincaré defined the grounds of difference with a question: Was there to be a moratorium with pledges or without pledges? France and, he was happy to add, Belgium and Italy were of the opinion that pledges must be taken. Only the British were opposed, and he asked Mr. Bonar Law to make one more attempt to accept the desire of the majority that the condition of pledges as defined in the French plan should be attached to the moratorium.

Mr. Bonar Law, speaking slowly ,answered that under no circumstances could he accept the French proposal that a moratorium should be accomplished by pledges of the kind proposed. Further, he could not accept the distinction which M. Poincaré had made between the British and French points of view. It was not, he said, a question of pledges which was the real difference in principle between the British and French delegations, but whether the steps to be taken would or would not prevent the recovery of German credit.

The British view was that there were two ways of dealing with the question. One was to seize whatever was within reach and the other was to see if what was seized would prevent the recovery of German credit. He therefore put it to the conference that the real grounds of difference was not merely one of particular pledges, but whether the amounts which Germany was to surrender under these pledges during the next two years were not so great as to make the recovery of German credit impossible.

British examination of the French proposals had shown that the amount of £80,000,000 sterling would be collected from Germany and that it did not matter whether that amount was in cash or kind, the result would be

the same—it would completely prevent the recovery of German credit and therefore prevent the collection of those large sums from Germany which the Allies as victors in a war of wanton aggression had a right to expect. That being so, he could not give his adherence to the French proposals, and to his great regret he felt compelled to retire from the conference.

GERMANY DECLARED IN DEFAULT.—On December 26 the Allied Reparation Commission declared Germany in voluntary default in wood deliveries by a vote of 3 to 1, Belgium and Italy supporting France against Great Britain. Germany had carried out something over sixty per cent of the required deliveries for 1922. This action of the Commission forecast the subsequent disagreement in the Conference of Premiers.

On January 9 the Commission by the same vote declared Germany in voluntary default in coal deliveries, the amount supplied being about 2,000,000 tons short of the 13,500,000 due France in 1922. The British delegate, Sir John Bradbury, upheld the right of Germany to make good by supplementary cash payments. The American observer in the Commission, Mr. Boyden, submitted a statement admitting the technical legality of the action taken, but asserting the impossibility of the Versailles treaty terms and questioning the practical efficacy of the measures proposed.

MILITARY OCCUPATION OF THE RUHR.—Following the action of the Reparation Commission, France and Belgium sent identic notes to Germany declaring their decision to send engineers and a mission of control to supervise deliveries in the Ruhr coal region, with troops sufficient to safeguard the mission and insure the execution of the measures to be undertaken. French forces occupied Essen on January 11. When the German coal owners under orders from Berlin held up coal deliveries, the zone of occupation was extended before January 15 to include practically all the mines of the Ruhr region and control of all exits by water or rail, so as to insure full revenues from the tax on exports of coal. About 45,000 troops were used in the operation. Owners of coal mines who refused to submit to French control were put under arrest.

GERMAN COUNTERMEASURES.—The German ambassadors on January 10 quitted Paris and Brussels. The German Government sent a protest to all neutral nations declaring that the action taken by France and Belgium was in violation of the Versailles Treaty on the following grounds:

"1. Germany's defaults in her deliveries of wood and coal would, according to the note of the Reparation Commission of March 21, 1922, always only justify demands for subsequent payments.

"2. The Treaty of Versailles does not admit any territorial sanctions.

"3. The measures allowed by the Treaty of Versailles against Germany can only be applied by the Allied Powers as a whole and not by single powers of their own accord.

"The German Government herewith enters a protest against the oppression applied toward Germany in contradiction to the treaty and international law. The German Government does not intend to meet violence with

violence nor to reply to the breach of the treaty with a withdrawal of the treaty. However, as long as the state of affairs contrary to the treaty exists, Germany is not in a position to make actual reparations to those powers who have brought about this state of affairs."

Germany at once notified the Reparation Commission of her intention to suspend payments of money or in kind.

Upon the occupation of Essen the German Coal Syndicate transferred its papers and headquarters from Essen to Hamburg. This great syndicate by its control of coal deliveries exercised a predominant influence over all German industrial production and it was held largely responsible in France for the various devices by which Germany had evaded the requirements of the Versailles Treaty. The change of headquarters was made in order that France should be forced to undertake direct control and operation of the mines.

AMERICAN PROPOSAL DISREGARDED.—In the United States Senate, Senator Borah offered an amendment to the Naval Appropriation Bill proposing that the President should call a world economic conference. This amendment was subsequently withdrawn upon assurances that the Government had already offered suggestions of this nature to European powers. On December 29 Secretary Hughes in a speech at New Haven stated that the United States had approached the Allied nations with the suggestion that, in case of Allied disagreement over reparations, a commission of financiers from the nations concerned, including the United States, should attempt a solution. It appeared, however, that this was only a suggestion, and was not favorably received abroad; nor did the American objections to occupation of the Ruhr, which were informally presented at the same time, serve to deter the action taken.

AMERICAN TROOPS WITHDRAWN.—By a vote of 57 to 6 the United States Senate on January 6 adopted the Reed resolution stating that it was "the sense of the Senate" that American troops should be immediately withdrawn from the Rhine. Orders for the withdrawal were issued by the President on January 10, with provision that the 1,200 troops should embark about January 24 from Antwerp.

## LAUSANNE CONFERENCE ON NEAR EAST

FINAL ACTION DELAYED.—The difficulties of the Allies over German reparations delayed negotiations at Lausanne and, while not outwardly dividing the Allies in their Turkish policy, led the Turkish delegates to adopt a stiffer attitude. The chief opposition arose over the disposition of the Mosul oil fields, the allotment of the Turkish debt, and jurisdiction over foreigners in Turkey.

Lord Curzon on December 27 declared definitely that Great Britain would not allow the Mosul villayet to be separated from Iraq. Ambassador Child for the United States spoke for favorable treatment of

Armenians, and on January 15 stated that the American Government expected most favored nation treatment in all Turkish fiscal arrangements affecting foreigners, and also equality of treatment with Turkish citizens in everything affecting commerce, education, charity, and religion.

Agreement was reached for exchange of populations involving the removal of about 600,000 Greeks from Turkey (the 200,000 in Constantinople excepted) and 450,000 Turks from Greece and Western Macedonia, these exchanges to be carried out whether or not a general treaty agreement was reached. It was expected that a draft of the treaty would be presented to Turkey before the end of January.

## RUSSIA AND NORTHERN EUROPE

LITHUANIANS SEIZE MEMEL.—During January Allied control of the town and district of Memel, at the mouth of the Niemen River between German East Prussia and Lithuania, was seriously threatened by attacks of Lithuanian irregular forces. Since the war both the town and outlying districts have had a German local government under supervision of a French commissioner with a garrison of French troops.

On January 15 Lithuanian irregulars to the number of 2,000 or more entered the city, forced a truce with the French garrison of about 200, and remained in occupation. Their primary grievance was against the German local government and the difficulties of German currency, although their aim was apparently also to force a disposal of the territory in favor of Lithuania.

French destroyers and other Allied war vessels were despatched to the scene, and on January 17 it was announced that the Allies would send a special commission to Memel to reestablish a provisional government under Allied authority.

Washington, January 20.—The Lithuanian Legation here is in receipt of official advices from its home Government that diplomatic relations have been broken off by Germany as a protest against the seizure of Memel by Lithuanian irregular forces. The German Government, it is said, has broken off negotiations for the conclusion of a commercial treaty, and has instructed its newly appointed Minister to Lithuania not to present his credentials.

The text of the communication received by the Legation from Kovno follows:

"The German Foreign Office has submitted a vigorous note to the Lithuanian Minister at Berlin protesting against the insurrection at Memel and its seizure by rebel forces under Vilius Gaigalaitas.

"The note broke off negotiations for an economic treaty between Germany and Lithuania, which had reached an advanced stage, and notified Lithuania that the newly appointed Minister to Lithuania, S. Olsehausen, just arrived in Koyno, has been instructed not to present his credentials.—*New York Times,* Jan. 21.

## GREAT BRITAIN

BRITISH DEBT COMMISSION RETURNS TO ENGLAND.—The British Debt Commission, headed by Chancellor of the Exchequer Stanley Baldwin,

which came to America in January, held its first conference with the United States Commission on January 8, and continued conferences during the following week. The British delegation gave assurance of Great Britain's purpose to assume the full burden of the debt, and gave figures to show that the British budget had been balanced during the last three years, but that this had been accomplished by a tax rate amounting to about $100 per capita. These figures were presented to show England's need of a low interest rate and suspension of payments on the principal for a considerable period. The British delegates proposed an interest rate of three and one-half per cent, whereas the American delegation indicated that no rate lower than four per cent or four and one-fourth per cent was likely to be approved by Congress.

The British delegation returned on January 20 with the arrangement that further negotiations should be conducted through the British Embassy.

# REVIEW OF BOOKS

A Review by Rear Admiral N. C. Twining, U. S. Navy

## Q—SHIPS AND THEIR STORY. By E. Keble Chatterton, late Lieutenant Commander, R. N. V. R. Sidgwick and Jackson, Ltd., London, 1922.

By the early winter of 1914 the surface control of the sea was practically assured to the Allies, the destruction of Von Spee's squadron by Sturdee having cleared the outer seas of all enemy ships except the *Konigsberg,* blockaded in an African river. Beneath the surface, however, the case was different for the German submarines had already begun their effective work; the three *Cressy's* had been sunk on September 22, the British steamers *Glitra, Malachite,* and *Primo* in October and November, while two more British cruisers, *Hermes* and *Niger,* succumbed to submarine attack before the middle of November.

Germany now began to realize, if she had not done so before, what a weapon of offense she had in her hands and doubtless dreamed of gaining the control of the sea, the retention of which was so important to the Allies. The latter, on the other hand, were not slow to grasp the situation and to inaugurate means for fighting the submarine and for neutralizing the menace to their lines of communication.

Among the devices earliest resorted to in the anti-submarine warfare was the use of decoy ships which, to all external appearance were peaceful fishermen or trading vessels, but were actually armed for offensive action. The principle involved was, of course, not new, but in the matter of detail the decoy ships of 1914-18 were necessarily adapted to the existing conditions of the sea war and it is in respect of these details that the *Q*-ship is unique in history and was, in its equipment and handling, the incarnation of the ingenuity, courage, dash, determination and patience of the personnel, both regular and volunteer, of the British Navy with whom the idea originated and by whom, chiefly, it was carried into execution.

The book under review is a narrative of engrossing interest covering the activities of the British *Q*-ships from the date of the commissioning of the S. S. *Vittoria,* November 29, 1914, to the night, nearly four years later, when the *Privet* sank *U-34* in the Mediterranean, the last submarine to be destroyed before the Armistice. The arrangement is, in general, chronological, enabling the reader to form a very clear idea of the gradual evolution of the *Q*-ship, the modifications made from time to

time as experience in this peculiar kind of warfare taught its lessons, and the rapid increase in skill at the game that resulted from practice.

Vessels used as decoys ranged in type from large, ocean-going steamers to 34-foot open boats and included both steam and sailing vessels, cross-Channel steamers, colliers, cargo tramps, converted sloops, topsail schooners, barquentines, smacks, and trawlers. Of each class of vessel so employed, if we except the cross-Channel steamers and the open boats (cobbles), some one or more achieved a measure of success but it is the "three island" tramp steamer that, on the whole, must be regarded as having proved most suitable for the service.

The preparation and fitting out of vessels for *Q*-ship service was an art that was perfected by experience. Vessels were selected and assigned to certain areas of operation with a view to complete deception of the enemy; that is, they must not only present the appearance of trading vessels but of such vessels as were usually to be found in those areas. The utmost care was exercised in the matter of disguise; guns were carefully concealed in false deckhouses, in boats, or behind bridge screens in such a way that, while close inspection from without would arouse no suspicion, the concealing structure could be instantaneously dropped giving the guns free arcs of fire. Care of details became increasingly important as time went on and the submarine commanders became more and more wary. The converted sloop *Tulip* was sunk by submarine *U-62* whose captain reported that, while she was a very well-disguised trap, his suspicion of her character was aroused by the way the merchant flag was hoisted and by the fact that she appeared to have no defensive gun such as was carried by practically all merchant vessels at that period. In a similar vessel, the *Viola*, an imitation cargo hatch and derrick had been installed but these were vertically over the overboard (above water) discharge, a fact that was noted by the captain of a submarine and disclosed the character of the vessel.

The officers and crew were, of course, always dressed in plain clothes such as would naturally be worn by the personnel of the simulated vessel. This artifice was carried even further at times by dressing some of the officers as pilots, passengers, or women.

Machine guns were carried by nearly all vessels while the main armaments ranged from 1-pounders to 4-inch. One of the earliest *Q*-ships, the *Prince Charles*, carried a 3-pounder and a 6-pounder; the *Pargust*, fitted out in March, 1917, was armed with one 4-inch gun, four 12-pounders, and two 14-inch torpedo tubes. The 12-pounder was the largest gun carried by the earlier ships but the 4-inch was added or substituted after the discovery of the amazing ability of the submarine to stand punishment and when the submarines, themselves, were armed with guns outranging the 12-pounder.

In order that the ships might remain afloat as long as possible if torpedoed or badly damaged by gunfire, their holds were, in many cases, filled with empty casks or timber. This device served in a number of instances to permit of prolonging an engagement and even of saving the

vessel. In the *Suffolk Coast*, the last *Q*-ship to be fitted out, and which the author describes as "a veritable box of tricks," special water-tight bulkheads were fitted to reduce her vulnerability to torpedoes.

Secrecy as to the character of a ship was promoted by changing her name as soon as she sailed from her fitting out port. Thus the *Arvonian*, which was manned by the United States Navy and commanded by Commander D. C. Hanrahan, was fitted out at Devonport under that name but, on sailing for Queenstown, her name was changed to *Santee*. As the *Santee*, it may be remarked in passing, she had a short but honorable career, being torpedoed a few hours after sailing from Queenstown for Bantry Bay on December 27, 1917. Captain Hanrahan had not the satisfaction of engaging his assailant who departed for other scenes of activity without showing himself.

Not only were names changed to further the deception of the enemy as to the identity of vessels but their whole external appearance was frequently altered by the use of dummy escape pipes on funnels, changing funnel markings, repainting the entire vessel, changing arrangement of spars and rigging, altering appearance of deck structures by the use of canvas screens, and otherwise. Such transformations were frequently effected at sea, usually after an unsuccessful engagement with a submarine; their effectiveness is made evident by an inspection of some of the illustrations in Mr. Chatterton's book.

The personnel of the *Q*-ships included regularly commissioned officers and enlisted men of the Royal Navy, the Reserve, Volunteer Reserve, and Fleet Reserve as well as officers and men of the merchant service. The vessels were always commissioned as His Majesty's ships and commanded by duly commissioned officers so as to establish their public status in international law.

The sphere of operations of the *Q*-ships extended from the Arctic Ocean to the west coast of Africa and from the North Sea, English Channel, and Mediterranean to the western Atlantic. On December 8, 1916, the S. S. *Intaba* (*Q 2*) engaged a submarine in Kola Inlet; at about the same time the *Barranca* (*Q 3*), of 4,115 tons, was working off Madeira and the Canaries, while the *Dunclutha* and *Ooma*, of 3,000 to 4,000 tons, operated between the northeast coast of South America and the northwest coast of Africa.

It was in home waters, however, the North Sea, English Channel, and off the Irish and Scottish coasts, that the bulk of the work of the *Q*-ships was done, more of them being based on Queenstown than on any other one port. To those officers of the United States Navy who had the privilege of knowing Admiral Sir Lewis Bayly the following extract from Mr. Chatterton's book will seem a just appreciation:

"One of the greatest enthusiasts of the *Q*-ship idea was Vice Admiral Sir Lewis Bayly, who was in command of the Irish coast. No *Q*-ship officer serving under this admiral could ever complain that anything was left undone by assistance that could have been performed by the sagacity or advice of this commander-in-chief. . . . With his vast knowl-

edge of human nature, and his glance which penetrated into a man's very soul, he could size up the right type of volunteer for decoy work; then having selected him and sent him to sea, he assisted him all the time whenever wireless was advisable, and on their return to port encouraged, advised and rested the captains. . . . No keen, capable officer on this station who did his job ever failed to get his reward; and the result of all this, and the certain knowledge that if *in extremis* a Queenstown naval ship would at once be sent to his rescue, created such a fine spirit that an officer would almost sooner die than return to port after making a blunder of an engagement."

The *Q*-ships always operated singly; although it was not unusual for two or more to be in the same vicinity at one time, no concerted action was taken in true *Q*-ship work. Methods necessarily differed in detail according to circumstances but one idea was fundamental to all methods and plans of action: viz., to get as close to the enemy as possible or to lure him as close as possible before throwing off disguise, hoisting the White Ensign, and opening fire. (It is, perhaps, needless to say that merchant colors were shown so long as disguise was maintained). When accompanying convoys it was customary for the *Q*-ship to lag behind like a "lame duck" thus not only inviting attack but luring the submarine away from the convoy.

"It seemed for the professional naval officer as if the whole of his previous life and training had been capsized. Instead of his smart, fast destroyer, he found himself in command of an awkward, disreputable-looking tramp, too slow almost to get out of her own way. On the other hand, officers of the Mercantile Marine, fresh from handling freighters or liners, in whom throughout all their lives had been instilled the maxim "safety first," now found they had to court risks, look for trouble, and pretend they were not men-of-war. *Q*-ship work was, in fact, typical of the great upheaval which had affected the whole world."

The business of the *Q*-ship was to invite attack which might be by gunfire or by torpedo. A submarine having attacked, a portion of the crew, the "panic party," was sent away in boats while the remainder, including the guns' crews, lying concealed, awaited the approach of the submarine which usually came up to ascertain the name of the ship, to question the people in the boats, or to take prisoners and to complete the sinking of the vessel. Frequently the submarine was excessively cautious and would motor submerged round and round the damaged ship inspecting her through the periscopes. In one recorded case (the *Action*) the submarine came so close as actually to collide with the *Q*-ship, "shaking the latter fore and aft." Meanwhile the concealed *Q*-ship captain, watching the enemy through some sort of a peep-hole, patiently awaited the moment when the submarine, apparently satisfied of the harmlessness of his victim, came to the surface at short range and in a position in which the *Q*-ship's guns would bear; he then gave the order for action, screens were dropped, and fire opened.

In some cases the submarine, through caution or suspicion of the character of his quarry, could not be induced to close and the *Q*-ship was obliged to engage at ranges of 3,500 yards or more. In others the engage-

ment was fought at very short ranges, 300 yards to point blank; in such cases the accuracy of fire was of a high order and it was seldom that the enemy escaped; if he did manage to get away it was in a condition of such serious damage that he was obliged to return to base for extensive repairs.

It was usual for the *Q*-ships to avoid torpedo hits if possible by altering the helm or otherwise; the potential damage from such hits was so great that the ship might be prevented from carrying out her further mission. In contrast to this customary practice Captain Gordon Campbell's orders were, "Should the Officer of the Watch see a torpedo coming, he is to increase or decrease speed as necessary to ensure it hitting!" This order was carried into effect when the *Farnborough* engaged a submarine on February 17, 1917; the torpedo struck the ship abreast No. 3 hold. The *Farnborough,* although badly damaged, did not sink but was towed into Bantry Bay and beached. Her antagonist in this engagement, *U-83,* was destroyed.

The author gives some interesting statistics on the number of *Q*-ships employed and the results of their activities. In October, 1916, forty-seven *Q*-ships were operating at one time comprising types from motor drifters to medium-sized steamers. During the whole period of the war a total of 180 *Q*-ships were employed and to them the author credits more than eighty cases of "damaged German submarines . . . . sent home licking their wounds, anxious only to be let alone for awhile." The author further states that, of 203 enemy submarines sunk during the war from various causes, eleven were destroyed by *Q*-ships. Actually, the text gives accounts of the sinking of ten *U's,* five *UB's,* and two *UC's,* a total of seventeen. Of these eleven were accounted for by steamers, two by fishing smacks, two by submarines towed by trawlers, one by a trawler, and one by a sailing ship.

It is an interesting co-incidence that the text cites also seventeen cases of loss of *Q*-ships; two of these, the *Vala* and *Begonia,* never returned from their last cruise. The former was reported by German wireless to have been sunk by a submarine; of the *Begonia's* fate nothing is known. The *Prize (Q-21),* commanded by Lieutenant Commander Sanders, torpedoed by *UB-48* at midnight, February 11, 1918, sank with all hands.

The *Candytuft* engaged a submarine in the Mediterranean, off Cape Sigli, on November 18, 1917; a torpedo struck her in the starboard quarter entirely blowing off the stern and killing all the officers except the captain and two others, one of whom was badly wounded. A half hour later another torpedo tore off the bow, yet the remaining hulk drifted on the African coast and her guns were ultimately salved.

Casualties in engagements were, in general, lighter than might have been expected and, in the cases of total loss of ship and crew, the greater part of the personnel was usually saved. The U. S. destroyer *Wadsworth* rescued three officers and eight men of the *Lady Patricia,* the commanding and engineer officers of which had been taken prisoner by the Germans.

The U. S. S. *Noma* rescued some of the personnel of the *Dunraven* on the occasion of her sinking. The French destroyer *Dunois* picked up the survivors of the *Lady Olive*, sunk in the Channel on February 17, 1917, after they had been in open boats for upwards of thirty-six hours. Twice during the process of rescue the *Dunois* had to break off to attack a submarine which was hanging about in the vicinity having, apparently, followed the boats, perhaps for the purpose of attacking any vessel that might undertake a rescue.

Among the many ships and officers that did remarkable and praiseworthy work in this most hazardous service it may seem invidious to cite names. While we are prone to rate most highly those who achieved conspicuous success in the actual destruction of submarines, in simple justice we cannot overlook those less successful who gave the best of their skill and intelligence to the work and missed the supreme reward through bad luck or adverse circumstance. The author selects as the three *Q*-ships "which had the longest and most exciting career—*Penshurst, Farnborough*, and *Baralong*." Of these the *Farnborough* and *Baralong* were in service for more than three years and survived the war, each having several engagements with submarines and each sinking two. Of the *Penshurst* the author records nine engagements of which two resulted in the destruction of the enemy; she was, herself, sunk on Christmas Eve, 1917. The *Privet* is the only other vessel credited with two sinkings.

Undoubtedly the best known to the American reader of the *Q*-ship captains is Gordon Campbell, who commanded successively the *Farnborough, Pargust*, and *Dunraven*, destroyed three submarines, was promoted, first to Commander, then to Captain, and was further rewarded by the bestowal of the Victoria Cross, the Distinguished Service Order, and two bars to the latter. His last encounter with a submarine was while in command of the *Dunraven;* although the *Dunraven* was sunk and the *U*-boat escaped, the engagement was classic; the story of it, plainly but forcibly told by Mr. Chatterton, is thrilling and from it stand forth in high relief all the qualities of officers and men that spelled success in *Q*-ship warfare. The skill, patience, and indomitable spirit of captain, the courage, discipline, and devotion to duty of officers and men, were never more conspicuous than in this five-hour fight with a cautious and expert enemy.

Another notable *Q*-ship captain was Commander F. H. Grenfell, R. N., a retired officer who came back to active service at the outbreak of the war. In command of the *Penshurst* he fought several submarines and was successful in two engagements, sinking *UB-19* and *UB-37*, and receiving the D. S. O. as a reward.

Lieutenant W. E. L. Sanders, R. N. R., was "a gallant New Zealander who had come across the ocean to help the Motherland, performed amazing service in *Q*-ships, fought like a gentleman, won the Victoria Cross, and eventually, with his ship and all his crew, went to the bottom like the true hero that he was." After some subordinate service he was, in Febru-

ary, 1917, given command of the sailing ship *Prize* (*Q-21*) in which vessel he fought a long and spirited engagement with *U-93* for which he received the Victoria Cross and was promoted to Lieutenant Commander. His antagonist was so terribly damaged that it seemed impossible that she could have escaped destruction. The boats of the *Prize* picked up the submarine's captain, Von Spiegel, and two others who were believed to be the only survivors; yet *U-93* was successfully taken home by Sub-Lieutenant Ziegler, a fine achievement for which he was promoted by the Kaiser. For an engagement with a submarine on June 12, 1917, Sanders received the D. S. O., but he lost his ship and his life at the hands of *UB-48* in August of the same year.

Mr. Chatterton has produced a most readable historical narrative of the activities of the mystery ships and one which bears every evidence of historical accuracy although the historical style is not followed and an occasional reference to the enemy as "the Hun," while not out of place, perhaps, in a book of this character, would not be suitable in a severe history.

The author's sources of information are authentic, he having acquired much information from *Q*-ship officers, from official reports, logs, private diaries, plans, sketches, and so on as well as from personal observation while serving in patrol vessels off the southwest Irish coast. In addition to drawing from these British sources—the author has carefully examined such German reports as have been made available; while these are, as yet, far from complete as to the submarine activities such information as may come to light hereafter can hardly change essentially the view of the facts as presented in this book.

Mr. Chatterton takes pains to deny certain wild stories, current at the time, of atrocities charged against the Germans on the occasion of the sinking of the *Prize* and makes an authentic statement of the facts; in another place he testifies to the unexceptionable conduct of Von Spiegel when rescued from *U-93* who, when taken on board the *Prize*, offered his word of honor to make no attempt to escape and undertook that he and his men should render all possible assistance, the *Prize* being in desperate case herself as a result of the encounter.

On the other hand, the author cites an apparently authentic case of a submarine intentionally firing on the boats containing the "panic party" of a *Q*-ship, the *Dunraven*.

The book has an excellent Index in which the names of ninety-three *Q*-ships are found and by means of which the fortunes of each ship can be followed through the pages of the book. Altogether, Mr. Chatterton has made a very notable and acceptable contribution to the naval literature of the Great War and has produced a book not only well worth reading but of value as a book of reference.

A Review by Rear Admiral H. S. Knapp, U. S. Navy

## WHY WARS COME, by Rear Admiral A. P. Niblack, U. S. Navy. 12mo. 165 pages, $1.50. (The Stratford Company, Boston.)

This recent book by a well-known officer should attract the interest of naval officers because it was in large part written especially for them. Admiral Niblack describes it as the outgrowth of a lecture at the Naval War College on "Forms of Government in Relation to their Efficiency in War," and of a second lecture given before the Grotius Society on "Foreign Policies in Relation to the Causes of War."

About one hundred pages are devoted to a discussion of forms of government. With the birth of constitutional government as a starting point, Admiral Niblack discusses briefly the tendencies toward nationalism on the one hand and internationalism on the other, toward federalism, and toward representative government. He then lays down seven criteria by which to analyze forms of government, and applies these criteria to the governments of the more prominent nations. The reader may not always agree with the writer, but that very fact is thought-provoking and distinctly valuable. Of this part of the book the New York *Evening Post* recently said:

"In the main portion of the book he analyzes with keen insight and just discrimination the main character of the various governments in the world today. His thought is so correct and phrased in such direct and accurate language that the lack of an index is unfortunate, for this is a book to which one may often wish to refer for concise and sound judgments or definitions on innumerable problems of government and policy."

Parallel with his discussion of forms of government the author discusses governmental policies. The connection of both with his title is made at the outset, where he says, on page 2:

"Wars result primarily from the conflicting interests or the conflicting policies of states. It is well, therefore, to inquire why national policies necessarily conflict. Imperfectly organized governments have plunged some countries into wars. It is well, therefore, to examine carefully the forms of government. We may express it in these terms. War being possible it is well to consider national policies and forms of government in their relation to war, in the hope of avoiding the causes of war."

In Chapter XIV the author discusses very briefly the effect of the League of Nations in preserving peace. He reaches the personal conviction that "we should try to apply the same rules of morality to states that we do between individuals." In Chapter XV are given some valuable data concerning the area and population of a number of states, in which one notes with regret the absence of these data for the French homeland although they are tabulated for French possessions elsewhere. In the final chapter the author states his conclusions, which the reviewer will leave to the reader to discover for himself.

The book makes no pretense to be an exhaustive treatise on the subjects with which it deals. It does set down in simple and clear language the conclusions born of the author's wide experience, some of which gave him more opportunity than often falls to naval officers to observe the workings of foreign governments at close range. The book has been well received abroad. The well-known naval writer, Mr. Hector C. Bywater, devotes more than two columns to it in a recent issue of the *Naval and Military Record,* in which he says: "The result is a thoughtful and thought-compelling book, which will be welcomed as a really valuable contribution to the literature of political science."

With these words of Mr. Bywater the present reviewer is content to close his own account, except to add that it is a pity that the book should be marred in appearance by a number of typographical errors.

# U. S. NAVAL INSTITUTE

## SECRETARY'S NOTES

### NAVAL INSTITUTE PRIZE, 1923

The Board of Control, having considered the articles published during the year 1922, has awarded prizes as follows:

**Naval Institute Prize, 1923** "for the best original article on any subject pertaining to the naval profession."—Awarded to Rear Admiral W. V. Pratt, U. S. Navy,—*Some Considerations Affecting Naval Polity,* published in the November, 1922 issue—Cash prize of $200 and a gold medal.

**Honorable Mention, 1923** Commander F. M. Perkins, U. S. Navy—*Is the Fleet Strategically Concentrated?* published in the November, 1922 issue—Cash prize of $75 and a life membership in the Naval Institute.

The Board of Control interprets the rules governing award in such a manner that articles published serially will be considered as eligible for the prize in the year when the last installment is published.

**Membership** Present Membership, 4,623. Changes since January 1, 1923: New members, 102. Resignations, 21. Deaths, 5. Total Increase, 76.

*Members are requested to urge non-members to join, and send subscriptions for the* PROCEEDINGS *to their friends outside the Service. These may begin with any month desired.*

**Dues** Membership dues ($3.00) for the year 1923 are payable. Members are urged to remit promptly. Dues continue until the date of receipt of resignation in writing.

**Life Membership** Attention is called to the advantage of taking out a life membership, the cost of which is only $40, giving the certainty of never being *in arrears* for dues. One officer writes that it was the best investment he ever made.

**Subscription Rates** In order to bring the subscription rate more nearly in line with the cost of publication, the Board of Control has increased the subscription rate to $5.00 per year. A special rate of $3.50 per year is made to members only (not available to societies or organizations) in order that they may send subscriptions to the PROCEEDINGS to their relatives and friends. (Foreign postage 50 cents extra in all cases). Subscriptions are automatically discontinued at expiration.

**Back Issues** Membership and subscriptions may start with any month desired. For a limited time, subscriptions or membership may commence with the December, 1922 issue, in order to have a complete file of the interesting article on "Destroyer Experiences" completed in the current issue.

**Discussions** Discussion of articles published in the PROCEEDINGS is cordially invited. Discussions accepted for publication are paid for at one-half the rate for original articles, or about $2.25 a page.

**Articles** The Institute desires articles of interest to all branches of the service, including the reserve force. Non-members as well as members may submit articles, and authors receive due compensation for articles published. Compact, well digested articles are more likely to be accepted for early publication.

**Book Reviews** As soon as practicable after the publication of books on subjects of professional interest, the Institute aims to publish authoritative reviews of them.

**Book Department**

*The Institute Book Department will supply any obtainable naval, professional, or scientific book at retail price, postage prepaid.* The trouble saved the purchaser through having one source of supply for all books should be considered. The cost will not be greater and sometimes less than when obtained direct from dealers.

Address orders to: U. S. Naval Institute, Annapolis, Maryland.

**Address of Members**

To insure the delivery of the PROCEEDINGS and other communications from the U. S. Naval Institute, it is essential that members and subscribers *notify the Secretary and Treasurer of every change of address without delay.*

**Reprints of Articles**

Twenty copies of reprints are furnished authors free of charge. Additional copies to the number desired will be furnished at author's expense, provided request is made before going to press.

H. G. S. WALLACE,
*Commander, U. S. Navy, Secretary and Treasurer.*

# BALANCE SHEET
# U. S. NAVAL INSTITUTE
# DECEMBER 31, 1922

## ASSETS

| | | | |
|---|---|---|---|
| *Cash* | | | |
| Farmers' National Bank | | $ 5,837.45 | |
| Savings Banks | | 17,209.88 | $ 23,047.33 |
| *Accounts Receivable* | | | |
| Dues | | $ 5,382.98 | |
| Subscriptions | | 11.45 | |
| Advertisements | | 360.81 | |
| Various Dealers | | 5,756.47 | 11,511.71 |
| *Other Assets* | | | |
| Bonds | | $102,352.39 | |
| Inventory | | 38,556.88 | |
| Prepaid Royalty | | 245.64 | |
| Furniture and Fixtures | $ 2,950.66 | | |
| *Less* Depreciation | 586.63 | 2,364.03 | |
| Prepaid Expense | | 989.16 | |
| Authors' Rights | | 2,151.46 | 146,659.56 |
| TOTAL ASSETS | | | $181,218.60 |

## LIABILITIES AND NET WORTH

| | | | |
|---|---|---|---|
| *Accounts Payable* | | | |
| Lord Baltimore Press | | $ 564.38 | |
| Various Dealers | | 1,768.20 | |
| Accrued Royalty | | 74.13 | $ 2,406.71 |
| *Prepayments* | | | |
| Dues | | $ 765.79 | |
| Subscriptions | | 988.91 | |
| Sundry | | 105.23 | 1,859.93 |
| TOTAL LIABILITIES | | | $ 4,266.64 |
| *Reserves* | | | |
| Reserve Fund, Jan. 1, 1922 | $ 8,964.09 | | |
| Add: From Cash | 79.50 | | |
| From Miscellaneous | .50 | | |
| From Surplus | 80.00 | $ 9,124.09 | |
| Reserve Bad Debts Jan. 1, 1922 | $ 554.51 | | |
| Less Charges | 4.05 | 550.46 | |
| | | $ 9,674.55 | |

| | | | |
|---|---|---|---|
| *Surplus* | | | |
| January 1, 1922 | $170,177.75 | | |
| Add 1921 Bill Cancelled | 88.86 | | |
| | $170,266.61 | | |
| Less Transferred to Reserve Fund... | 80.00 | | |
| | $170,186.61 | | |
| Year's Loss | 2,909.20 | 167,277.41 | |
| | | | 176,951.96 |
| | | | $181,218.60 |

## PROFIT AND LOSS STATEMENT
## U. S. NAVAL INSTITUTE

## FOR THE YEAR ENDING DECEMBER 31, 1922

| | | | |
|---|---|---|---|
| *Institute Publications* | | | |
| Sales | | $33,206.73 | |
| Purchases | $21,173.63 | | |
| *Add* Inventory, Jan. 1, 1922 | 32,609.62 | | |
| | $53,783.25 | | |
| *Less* Inventory, Jan 1. 1923 | 36,492.74 | | |
| | $17,290.51 | | |
| *Add* Royalty | 4,446.11 | 21,736.62 | |
| Profit | | | $11,470.11 |
| *Purchased Books* | | | |
| Sales | | $ 3,004.48 | |
| Purchases | $ 2,389.18 | | |
| Inventory, Jan. 1, 1922 | 946.01 | | |
| | $ 3,335.19 | | |
| Inventory, Jan. 1, 1923 | 951.86 | 2,383.33 | |
| | | | 621.15 |
| Profit on Book Sales | | | $12,091.26 |
| *Proceedings and Index* | | | |
| Sales | | $ 317.17 | |
| Income Dues and Subscriptions | $15,682.11 | | |
| Advertisements | 3,209.18 | | |
| New Subscribers | 298.03 | | |
| New Members | 203.30 | | |
| Binding | 44.00 | 19,436.62 | |
| Total Income PROCEEDINGS | | $19,753.79 | |
| Purchases | $18,300.50 | | |
| Inventory, Jan. 1, 1922 | 1,130.70 | | |
| | $19,430.20 | | |
| Inventory, Jan. 1, 1923 | 1,112.28 | | |

| | | | |
|---|---|---|---|
| | $18,317.92 | | |
| Discount | 74.00 | | |
| Contributors | 4,879.98 | | |
| Bad Dues | 95.17 | | |
| Envelopes | 93.00 | | |
| Prizes | 275.00 | 23,736.07 | |
| Loss on PROCEEDINGS | | | 3,982.28 |
| Trading Profit | | | $ 8,109.98 |
| *Operating Expense* | | | |
| Postage | $ 1,721.25 | | |
| Advertisements | 943.43 | | |
| Office Expense | 653.22 | | |
| Salaries | 12,413.00 | | |
| Express and Hauling | 275.92 | | |
| Board Meetings | 1,405.72 | | |
| Cost of Collection | 6.88 | | |
| Depreciation Furniture and Fixtures | 295.07 | | |
| Insurance | 60.18 | | |
| A. B. C. Membership | 59.80 | | |
| Christmas Gratuities | 90.00 | | 17,924.47 |
| Operating Loss | | | $ 9,815.49 |
| *Sundry Income* | | | |
| Interest Income | $6,477.29 | | |
| Interest Expense | 230.28 | $6,247.01 | |
| Bond Appreciation | $ 875.00 | | |
| *Less* Loss Bond Sale | $175.00 | | |
| *Less* Commission | 50.25 | 225.25 | 649.75 |
| Income Sundries | | 9.53 | 6,906.29 |
| Loss for Year | | | $ 2,909.20 |

## CHANGES IN NET WORTH
## FOR THE YEAR ENDING DECEMBER 31, 1922
## U. S. NAVAL INSTITUTE

### ASSETS

| | *Dec. 31, 1921* | *Dec. 31, 1922* | *Increase* | *Decrease* |
|---|---|---|---|---|
| Cash Farmers' National Bank | $ 4,499.71 | $ 5,837.45 | $1,337.74 | $..... |
| Savings Banks | 16,541.74 | 17,209.88 | 668.14 | ..... |
| Dues Receivable | 3,142.18 | 5,382.98 | 2,240.80 | ..... |
| Subscriptions Receivable | 22.10 | 11.45 | ..... | 10.65 |
| Advertisements Receivable | 717.13 | 360.81 | ..... | 356.32 |
| Accounts Receivable | 17,373.94 | 5,756.47 | ..... | 11,617.47 |
| Bonds | 102,587.39 | 102,352.39 | ..... | 235.00 |
| Inventory of Books | 34,686.33 | 38,556.88 | 3,870.55 | ..... |
| Prepaid Royalty | 291.29 | 245.64 | ..... | 45.65 |
| Furniture and Fixtures | 2,915.66 | 2,950.66 | 35.00 | ..... |
| Prepaid Expense | 1,154.36 | 989.16 | ..... | 165.20 |

| | | | | |
|---|---|---|---|---|
| Refunds Receivable | 2.70 | ..... | ..... | 2.70 |
| Authors' Rights | 2,964.41 | 2,151.46 | ..... | 812.95 |
| **Totals** | | | $8,152.23 | $13,245.94 |

## LIABILITIES

| | | | Decrease | Increase |
|---|---|---|---|---|
| Depreciation Furniture and Fixtures | $ 291.56 | $ 586.63 | $..... | $ 295.07 |
| Accounts Payable Lord Baltimore Press | 4,369.98 | 564.38 | 3,805.60 | ..... |
| Accounts Payable Miscellaneous | 326.55 | 1,768.20 | ..... | 1,441.65 |
| Royalty Payable | 86.48 | 74.13 | 12.35 | ..... |
| Prepaid Dues | 963.40 | 765.79 | 197.61 | ..... |
| Prepaid Subscriptions | 1,076.55 | 988.91 | 87.64 | ..... |
| Miscellaneous Overpayments | 88.07 | 105.23 | ..... | 17.16 |
| Reserve Bad Debts | 554.51 | 550.46 | 4.05 | ..... |
| Reserve Fund | 8,064.09 | 9,124.09 | ..... | 80.00 |
| Totals | | | $ 4,107.25 | $ 1,833.88 |
| | | | $12,259.48 | $15,079.82 |
| 1921 Bill Payable Cancelled | | | | 88.86 |
| Year's Loss | | | 2,909.20 | |
| | | | $15,168.68 | $15,168.68 |

Audited and Found Correct:

JOHN DOWNES, *Commander, U. S. Navy.*
H. D. COOKE, *Commander, U. S. Navy.*
W. R. VAN AUKEN, *Commander U. S. Navy.*

Approved by the Board of Control, February 14, 1923.

H. G. S. WALLACE, *Commander, U. S. Navy,*
*Secretary and Treasurer.*